6TH National Report for the Convention on Biological Diversity

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Sixth National Report

SUBMITTED ON: 27 DEC 2018 LAST UPDATED: 30 DEC 2018

Section I. Information on the targets being pursued at the national level

Country

Myanmar

National Targets

1.1 By 2018, awareness of biodiversity values in key decision makers and line agencies has been improved.

Rationale for the National Target

The Aichi Target 1 was subdivided into national targets for awareness-raising that are aimed at different sectors: government, private sectors media and local communities. 1.1 deals with government. EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

1. Awareness of biodiversity values
People are aware of the values of biodiversity
People are aware of the steps they can take to conserve and sustainably use biodiversity

Sub-Aichi Targets or Target components

19. Biodiversity knowledge
Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were EN

provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions

1.2 By 2018, the private sector has an enhanced understanding of the value of biodiversity and relation to business practices

Rationale for the National Target

The Aichi Target 1 was subdivided into national targets for awareness-raising that are aimed at different sectors: government, private sectors media and local communities. 1.2 deals deals specifically with the private sector to try and improve understanding of biodiversity issues.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

1. Awareness of biodiversity values
People are aware of the values of biodiversity
People are aware of the steps they can take to conserve and sustainably use biodiversity

Sub-Aichi Targets or Target components

19. Biodiversity knowledge
Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-	EN

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1.3 By 2017, the media have an improved understanding of and capacity to communicate topics related to biodiversity

Rationale for the National Target

The Aichi Target 1 was subdivided into national targets for awareness-raising that are aimed at different sectors: government, private sectors media and local communities. 1.3 deals with with national media.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

1. Awareness of biodiversity values
People are aware of the values of biodiversity
People are aware of the steps they can take to conserve and sustainably use biodiversity

Sub-Aichi Targets or Target components

19. Biodiversity knowledge
Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

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1.4 By 2020, local communities in and around PAs have enhanced opportunities to share knowledge and participate in management activities

Rationale for the National Target

See 1.1. This national target was developed to enhance the knowledge of the values of biodiversity specifically of communities near protected areas. EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

1. Awareness of biodiversity values
People are aware of the values of biodiversity
People are aware of the steps they can take to conserve and sustainably use biodiversity
11. Protected areas
Protected areas are effectively and equitably managed
19. Biodiversity knowledge
Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were EN

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1.5 By 2020, primary and secondary curricula have incorporated biodiversity values

Rationale for the National Target

The Aichi Target 1 was subdivided into national targets for awareness-raising that are aimed at different sectors: government, private sectors media and local communities. 1.5 is intended to improve knowledge of students on biodiversity issues as a key part of awareness-raising at the public level.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

1. Awareness of biodiversity values
People are aware of the values of biodiversity
People are aware of the steps they can take to conserve and sustainably use biodiversity

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National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions	EN

2.1 By 2018, Myanmar has made a formal commitment to natural capital accounting and has taken significant steps to integrate the value of biodiversity and ecosystem services Into Its national accounts

Rationale for the National Target

In line with Aichi Target 2, this target commits the country to work towards including biodiversity values in national accounting	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

2. Integration of biodiversity values
Biodiversity values integrated into national and local development and poverty reduction strategies
Biodiversity values integrated into national and local planning processes
Biodiversity values incorporated into national accounting, as appropriate
Biodiversity values incorporated into reporting systems

Relevant documents and information

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2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning

Rationale for the National Target

This target follows from national target 2.1, and applies to regional levels of governance.	EN

Level of application

Jurisdiction

Sub-national

Details on the level of application

States	EN

Relevance of National Targets to Aichi Targets

Aichi Target components

2. Integration of biodiversity values
Biodiversity values integrated into national and local development and poverty reduction strategies
Biodiversity values integrated into national and local planning processes
Biodiversity values incorporated into reporting systems

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions	EN

2.3 By 2018, the government has significantly enhanced its capacity to review and assess EIAs and monitor and enforce EMPs.

Rationale for the National Target

This target is an important aspect of incorporating conservation and biodiversity values into development assessments (EIAs). The use of EIAs has been lacking in Myanmar owing tot lack of a process, laws, and capacity for government staff.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

2. Integration of biodiversity values
Biodiversity values integrated into national and local development and poverty reduction strategies
Biodiversity values incorporated into reporting systems

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions	EN

2.4 By 2017, Myanmar has been assessed as an EITI compliant country

Rationale for the National Target

The Extractive Industries Transparency Initiative (EITI) provides a framework for improving	EN

resource governance and the accountability of extractive industries through increased transparency and multi-stakeholder dialogue. Established in 2003 to strengthen the transparency of government and company accounting and reporting systems, inform public debate, and enhance trust between stakeholders, EITI is a global standard to promote open and accountable management of natural resources. While EITI compliance applies to only oil and gas and mining, its principles can be applied to other extractive sectors such as timber and marine fisheries. EITI is being implemented by a multi-stakeholder group of government, private sector, and civil society representatives.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

2. Integration of biodiversity values
Biodiversity values integrated into national and local development and poverty reduction strategies

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions	EN

3.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management

Rationale for the National Target

Tenure systems, including customary rights and access rights to natural resources, play a fundamental role in shaping incentives and disincentives for sustainable	EN

resource management. Tenure systems determine who has the right to manage resources, including terrestrial, marine/freshwater, and sub-surface resources, and who can benefit from their use. Securing tenure for local communities creates strong incentives for sustainable management, while insecure and open access tenure promotes rapid extraction for short-term gain.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

3. Incentives
Positive incentives for conservation and sustainable use of biodiversity developed and applied

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions	EN

3.2 By 2020, positive incentives are established for the sustainable use of nature

Rationale for the National Target

Governments use positive and negative incentives, such as subsidies and taxes, to influence outcomes such as the level of investment in certain sectors, for public policy purposes. Subsidies can create a positive incentive resulting in an increase in production and supply relative to demand, while certain taxes can create a negative incentive decreasing production and supply relative to demand. Depending on the incentive structures chosen, incentives can be used to undermine or promote environmentally sustainable practices. Incentive structures in resource management	EN

can also be heavily affected by property rights, which are intrinsically linked to decisions on management for sustainability or short term gain, and explicit recognition of the non market economic value of ecosystems through valuation of ecosystem services and implementation of payments for economic services schemes.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

3. Incentives
Incentives, including subsidies, harmful to biodiversity, eliminated, phased out or reformed in order to minimize of avoid negative impacts
Positive incentives for conservation and sustainable use of biodiversity developed and applied

4.1 By 2020, SEA conducted and guidelines prepared for mining and energy sectors.

Rationale for the National Target

Strategic Environmental Assessments (SEAs) are a common tool used to assess cumulative impacts of sectors with large scale cumulative environmental impacts. SEAs can identify critical areas in which development is not appropriate, and identify thresholds of impacts on biodiversity and natural resources required to ensure that cumulative development impacts occur within safe ecological limits. This information would support the development of industry guidelines, and form the basis for subsequent assessment of the impacts of individual projects.

EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

4. Use of natural resources
Governments, business and stakeholders at all levels have taken steps to achieve, or have implemented, plans for sustainable production and consumption
Have kept the impacts of use of natural resources well within safe ecological limits

Relevant documents and information

The 'Ecological Footprint Indicator' to 2016 is included here to illustrate that Myanmar, overall, has not overused its resources, however see Targets 5, 7 and 12 for clear warning signs about some biodiversity resources. National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions	EN

Other relevant website address or attached documents

Footprint Myanmar.jpeg

5.1 By 2020, at least 10% of 'dry mixed deciduous forest' (DMDF) and mangrove forest has been put under some form of protection, including sustainable use and management

Rationale for the National Target

Myanmar holds 125,000 km2 of dry mixed deciduous forest (DMDF), half of the total in Southeast Asia {Wohlfart et al. 2014). DMDF is restricted to lowland areas with strongly seasonal rainfall and found in isolated patches or as modified fragments within a human-dominated landscape, DMDF is one of the least protected forest types in the tropics. Some relatively large areas of DMDF remain in Sagaing Region, Shan and Rakhine States, but conversion of forests to agriculture and shifting cultivation is prevalent, along with illegal cutting of timber and firewood collection is also common. Because of the large human population in areas with DMDF, there are few opportunities for establishing protected areas. As a result, community-based conservation, including community forestry, community conservation agreements, and other forms of sustainable management are more appropriate for remaining forest patches. Demonstrated interest by communities, local leaders, and parliamentary representatives for preserving forest patches indicate opportunities to establish sustainable management given appropriate support from government and NGOs.	EN

Myanmar has the third largest area of mangroves in Southeast Asia (after Indonesia and Malaysia). However, studies have shown significant declines in mangrove particularly in Rakhine State and Ayeyawady Region. Mangroves play several functional roles, including protecting against shoreline erosion and as nursery areas for many aquatic and terrestrial wildlife species, Hence protection is important, as is a more sustainable approach to use of mangrove forest habitats.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
The loss of all habitats is at least halved and where feasible brought close to zero
Degradation and fragmentation are significantly reduced

Sub-Aichi Targets or Target components

7. Areas under sustainable management
Areas under aquaculture are managed sustainably, ensuring conservation of biodiversity
Areas under forestry are managed sustainably, ensuring conservation of biodiversity
11. Protected areas
At least 17 per cent of terrestrial and inland water areas are protected.
At least 10 per cent of coastal and marine areas are protected
Areas of particular importance for biodiversity and ecosystem services protected
Protected areas are ecologically representative
Protected areas are effectively and equitably managed
15. Ecosystem resilience
At least 15 per cent of degraded ecosystems are restored, contributing to climate change mitigation and adaptation, and to combating desertification

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the	EN

central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments,NGOs, research institutes and academic institutions.

5.3 By 2020, all wetland areas surveyed and prioritized for conservation value.

Rationale for the National Target

The last wetland inventory in Myanmar was completed in 2003, but it did not cover the entire country. Myanmar had not established a national wetlands management committee by 2014, and had no wetlands management policy. As the basis of such a policy, the 2004 wetlands inventory should be updated and expanded to include more information on fish diversity and to fill geographic gaps, notably Shan State, Rakhine State, Taninthayi Region, and the upper Chindwin River. Further, Myanmar joined the Ramsar Convention in 2005, but maintained only one Ramsar site (the Moeyungyi Wetland Sanctuary, a 100 km2 man-made wetland near Yangon). Wetland protection is essential to enable ecosystem services to continue to flow from these important habitats (cf. Target 1 case study on valuing services from the Moeyungyi Wetland). EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

5. Loss of habitats
The loss of all habitats is at least halved and where feasible brought close to zero
11. Protected areas
At least 17 per cent of terrestrial and inland water areas are protected.
Areas of particular importance for biodiversity and ecosystem services protected
Protected areas are ecologically representative
Protected areas are effectively and equitably managed
Protected areas are well connected and integrated into the wider landscape and seascape
14. Essential ecosystem services
Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded
Taking into account the needs of women, indigenous and local communities, and the poor and

vulnerable

Relevant documents and information

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5.2 By 2018, the PFE will have been re-assessed

Rationale for the National Target

The permanent forest estate provides a baseline against which both habitat loss and forest restoration can be measured.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
The loss of all habitats is at least halved and where feasible brought close to zero
Degradation and fragmentation are significantly reduced
Areas under forestry are managed sustainably, ensuring conservation of biodiversity

Sub-Aichi Targets or Target components

Protected areas are ecologically representative

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

5.4 By 2020, there has been an increased effort to combat and reduce illegal logging.

Rationale for the National Target

A main cause of habitat loss in Myanmar has been illegal logging. While Myanmar has large areas under sustainable management, especially under community forests, illegal logging remains a problem in several areas of the country owing to the highly valuable timber species, including teak. Illegal logging reduces available habitat for wildlife species as well as creating access to previously inaccessible areas. An increased effort to reduce illegal logging will therefore assist in reducing habitat loss in forests. (Note: in the NBSAP Target 5.4 is misprinted.)	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
The loss of all habitats is at least halved and where feasible brought close to zero
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Areas under forestry are managed sustainably, ensuring conservation of biodiversity

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Other relevant website address or attached documents

Myanmar_Extent_and_Drivers_of_deforestation_and_Forest_Degradation.pdf
Myanmar_Illicit_Timber_Trade and wildlife_Report_15.pdf

5.5 By 2020, negotiation phase to sign Forest Law Enforcement Governance and Trade (FLEGT) and Voluntary Partnership Agreement (VPA) has been conducted

Rationale for the National Target

Part of the national planning to reduce illegal timber harvesting and move to a more sustainable harvest has been the planning with the European Union (EU) to develop a FLEGT process for Myanmar. The FLEGT-VPA facility helps members to combat illegal logging and strength forest governance while encouraging sustainable economic development in countries that produce or process timber and export to the EU. Successful implementation would mean better enforcement and reduced illegal logging, leading to reduced habitat loss through forest degradation.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
The loss of all habitats is at least halved and where feasible brought close to zero
Degradation and fragmentation are significantly reduced
7. Areas under sustainable management
Areas under forestry are managed sustainably, ensuring conservation of biodiversity

Relevant documents and information

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Other relevant website address or attached documents

FLEGT site for Myanmar

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.

Rationale for the National Target

Lessons from other countries in the region (e.g. Philippines) show that when fishing communities are given more responsibility and authority for managing their local fisheries, either alone (community-based management) or in cooperation with government (co-management), compliance with rules and regulations increases, leading to more sustainable fishing practices. Regional experience also shows that when communities are given more control over their resources and the ability to exclude outsiders and reap the benefits of sustainable management, they invest their own time and effort in protecting the resources and enforcing regulations on use. Improved laws could help address pressures on freshwater fisheries and marine areas, where harvesting is unsustainable, using destructive gear and illegal fishing practices. Rakhine State now has a law enabling community fisheries.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

6. Sustainable fisheries
All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches
Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems
The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, i.e. overfishing avoided

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

6.2 By 2020, total commercial marine catch reduced to more sustainable levels.

Rationale for the National Target

The greatest threat to marine fisheries is unsustainable harvesting, both legal and illegal. The major factors behind the decline in coastal fisheries include the use of intensive and destructive fishing gear, little respect for seasonal closures, local and foreign trawlers illegally entering near-shore areas, and loss of mangroves, seagrass, coral reefs, and other ecosystems essential for the survival of fish at different stages in their life cycle. The shrimp sector has been particularly hard hit. In northern Rakhine State, the area of shrimp farming increased from 34,000 hectares in 2001, to 63,000 hectares in 2005, and to 45,000 hectares by 2010. Meanwhile, productivity declined from 200 kg/hectare/year to less than 20 kg/hectare/year, the inevitable result of massive loss of mangroves, which provide a natural nursery habitat for shrimp larvae. This situation was confirmed by the Norwegian marine research vessel RV Fridtjof Nansen, which returned to Myanmar after a 30-year gap to survey 145 locations across its Exclusive Economic Zone. The preliminary results show that there have been dramatic declines in fish populations with the biomass of pelagic (open ocean) and demersal (which live on or near the ocean bottom) fish declining by go% and 6o%, respectively, since the previous survey in 1980. This decline is almost certainly the result of massive overfishing	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Sub-Aichi Targets or Target components

6. Sustainable fisheries
All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches
Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems
The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, i.e. overfishing avoided

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7.1 By 2020, SRI and other forms of environmentally friendly rice production have been implemented in 10% of rice paddy area

Rationale for the National Target

The integration of conservation and agriculture in multi-functional landscapes, with policies that affirm smallholder farmers as the backbone of agricultural production in Myanmar, is essential for achieving the goals of agricultural growth, poverty reduction, and biodiversity conservation. This integration plays out over multiple scales depending on local realities of tenure and crop needs, from the landscape level to the sustainable management of farms and forests. Models can be found in traditional management systems as well as modern precision agriculture techniques.	EN

Rice is the major crop in Myanmar but The environmental impacts of rice include: groundwater depletion, reduced stream flows, water logging and salt build up, biodiversity loss, soil health deterioration, agrochemical pollution, and agrochemical damage (to soil microorganisms, beneficial insects and human health). These impacts degrade natural resources, reduce ecosystem services, impose heavy costs on human health, and potentially jeopardize long-term food security. Sustainable rice production practice seek to limit inputs through soil, water, and crop management. Tools including precision nutrient application, improved soil management, alternate wetting and drying of paddy fields, and IPM minimize harmful inputs and increase yields and resilience. Another system for improving rice sustainability is the System of Rice Intensification (SRI), a suite of flexible cropping principles, including reducing the number of seeds planted, increasing spacing, and planting on drier fields instead of waterlogged paddy. This target is meant to reduce environmental impacts from rice production.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

7. Areas under sustainable management
Areas under agriculture are managed sustainably, ensuring conservation of biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	EN

7.2 By 2020, 5% of fish and shrimp aquaculture by volume follows

international best practices for sustainable management

Rationale for the National Target

In Myanmar, the area of aquaculture, predominantly freshwater fish ponds and shrimp farms, expanded from 12,300 hectares in 1991 to 181,600 hectares in 2013, and production rose from 6,400 tons to 944,800 tons over the same period, partly in response to declining marine catches. This expansion is expected to continue with the continued decline of wild catch, increased investment, and better access to foreign markets. The Myanmar Fisheries Federation has identified aquaculture as an investment priority, particularly for tilapia and other fast-maturing species. Over half of the aquaculture area, 92,400 hectares, consists of shrimp farms. As in many countries, these have had a devastating impact on mangroves, particularly in Rakhine State and the Ayeyawady Delta. The impact in northern Rakhine State has been particularly severe. Starting around the year 2000, large areas of mangroves were cleared to construct ponds, which removed the vital environmental goods and services that mangroves provide: including nursery areas (food and shelter) for juvenile shrimp, crabs and fish, both inside and outside the ponds; and protection against storms. This target commits Myanmar to improve the methods and planning for aquaculture consistent with Aichi Target 7.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Sub-Aichi Targets or Target components

7. Areas under sustainable management
Areas under aquaculture are managed sustainably, ensuring conservation of biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	EN

8.1 By 2020, understanding of the extent and severity of pollution in Myanmar and Its Impacts on biodiversity is significantly enhanced

Rationale for the National Target

Research on the impacts of pollution on ecosystems and biodiversity in Myanmar is currently limited. Known pollution impacts on ecosystem function and biodiversity relate primarily to the contamination and eutrophication of sensitive aquatic ecosystems and include: threats to the Irrawaddy dolphin resulting from bioaccumulation of mercury released by extensive gold panning and mining in the upper reaches of the Ayeyawady and Chindwin Rivers; declines in native invertebrate fauna and fish in Inlay Lake caused by excessive fertilizer and pesticide use on floating tomato gardens; eutrophication and sedimentation of rivers and other water bodies caused by release of untreated sewage as well as nutrient and sediment releases from large scale deforestation. A review of sources and types of pollution that have a high risk of threatening sensitive ecosystems or leading to biodiversity loss is a high priority for understanding and ultimately reducing the existing effects of pollution on biodiversity in Myanmar.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

8. Pollution
Pollutants (of all types) has been brought to levels that are not detrimental to ecosystem function and biodiversity
Pollution from excess nutrients has been brought to levels that are not detrimental to ecosystem function and biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets	EN

and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	

8.2 By 2017, the EIA Procedure, NEQG (guidelines), and NEQS (standards) include adequate provisions to ensure protection of biodiversity and ecosystem services

Rationale for the National Target

As the EIA Procedures are applied and refined, the next five years provides a critical opportunity. During this time the potential impacts of pollution on biodiversity should be integrated into the EIA Procedure, and compliance with conditions should be enforced to ensure that pollution emissions remain within acceptable environmental levels. MOECAF is in the process of finalizing National Environmental Quality {Emissions) Guidelines NEQG) which apply international standards to define recommended limits for noise and vibration, air emissions and effluent discharges. The guidelines will be applied as an interim measure while National Environmental Quality Standards {NEQS) are developed during the next few years. The next five years therefore also provide a critical opportunity to ensure that the N EQG are effectively implemented and that the NEQS incorporates consideration of potential biodiversity impacts in setting emissions thresholds.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

8. Pollution
Pollutants (of all types) has been brought to levels that are not detrimental to ecosystem function and biodiversity
Pollution from excess nutrients has been brought to levels that are not detrimental to ecosystem function and biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being	EN

derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions

8.3 By 2020, a water pollution monitoring network involving both government and local communities is operational at three critical freshwater sites and at existing or proposed Special economic Zones

Rationale for the National Target

Development at industrial zones (IZs) and Special Economic Zones (SEZ) such as Dawei, Thilawa, and Kyaukphyu has significant potential to outpace the capacity to assess environmental impacts and apply appropriate environmental standards (Figure 8). The experience at some special industrial zones elsewhere in Asia indicates that these areas have a high risk of severe long-term pollution problems leading to impacts to human health, degradation of local ecosystems, and loss of biodiversity, and may be vulnerable to a race-to-the-bottom scenario where IZs compete for clients by providing lower environmental compliance costs and hence lower environmental standards. Good environmental planning, including an effective EIA process, transparent monitoring and consistent enforcement of environmental standards are critical to managing the impacts of pollution on ecosystems and biodiversity.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

8. Pollution
Pollutants (of all types) has been brought to levels that are not detrimental to ecosystem function and biodiversity
Pollution from excess nutrients has been brought to levels that are not detrimental to ecosystem function and biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	EN

8.4 By 2020, informal and artisanal minors have an enhanced understanding of pollution and toxicity of mercury and methods to reduce its use

Rationale for the National Target

Artisan a! and small-scale gold mining is the largest anthropogenic source of mercury emission world-wide; the second largest source is from coal-fired power plants. Large quantities of artisanal and small-scale gold mining operations have been observed in Kachin, Shan, Kayah and Kayin States and Sagaing, Bago, Mandalay and Tanithayi Regions. Informal artisanal and small scale gold mining operations should be formalized and properly regulated, and the supply of mercury into the country should be restricted. Outreach and education programmes on the dangers of mercury poisoning and methods for reducing and eliminating mercury in gold mining operations should be held with artisanal gold miners around the country.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

8. Pollution
Pollutants (of all types) has been brought to levels that are not detrimental to ecosystem function and biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

8.5 By 2020, the sale and use of fuel additives, agrochemicals and veterinary drugs that are known to have significant negative impacts on biodiversity and ecosystem services are effectively controlled and, where appropriate, banned

Rationale for the National Target

A number of chemicals used for veterinary purposes, as pesticides, and as fuel additives are known to have catastrophic impacts on ecosystems and are unregulated in Myanmar, although the extent to which these chemicals are used is not known. The continued use of tetraethyl lead in fuel causes toxicity in plants, destroys natural communities of micro-organisms and can accumulate to toxic levels in animals. Regulation of such chemicals, consistent with international environmental standards, is a priority to minimize impacts on biodiversity.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

8. Pollution
Pollutants (of all types) has been brought to levels that are not detrimental to ecosystem function and biodiversity
Pollution from excess nutrients has been brought to levels that are not detrimental to ecosystem function and biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community

Rationale for the National Target

Limited information is available on the presence or impacts of invasive alien species (IAS) in Myanmar, as research on the identification of invasive species and the quantification of the impacts of invasive species is scarce. A review of information currently available, including the 2011 NBSAP and the Global Invasive Species Database, identifies 33 IAS occurring in Myanmar. Further information is required to identify emerging IAS problems, ecosystems most threatened by IAS, and potential environmental or socio-economic impacts. This information would allow the prioritization of the allocation of resources to IAS management. Early identification of IAS allows the targeting of resources and control or eradication may be undertaken at significantly lower costs than would be required to manage the IAS once established. Currently, the capacity to undertake research on IAS is limited, and obtaining the resources and skilled staff to conduct research is likely to be a challenge. Providing relevant IAS training to biological science students could be one strategy for developing the future capacity to undertake IAS research.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

9. Invasive Alien Species
Invasive alien species identified and prioritized
Pathways identified and prioritized
Priority species controlled or eradicated
Introduction and establishment of invasive alien species prevented

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

Other relevant website address or attached documents

Global IAS list for Myanmar

10.1 By 2020, 15 per cent of Myanmar's coral reefs conserved within MPAs, including LMMAs and other area-based conservation measures

Rationale for the National Target

Studies have suggested that key coral reef areas have declined by over 56% in recent decades due to destructive fishing practices (i.e. blast fishing, near-shore trawling and light lure fishing), overfishing, unregulated marine resource extraction (e.g. sea cucumbers and clams) and mass coral bleaching. They also revealed the absence of large pelagic species including sharks and rays for which the area was known until quite recently. Reducing the multiple anthropogenic stresses and building reef resilience is a top priority to ensure sustainability of marine and coastal resources. Although some PAs with marine coverage have been established, there is a substantial gap in representation of marine ecosystems, especially coral reefs. Existing MPAs such as Lampi Marine National Park (under FD jurisdiction) and the shark protected areas (under DOF) provide neither effective management nor sufficient protection for coral	EN

reefs. There is an urgent need to expand the MPA system and to enhance connectivity to enhance the ecological resilience of reefs.	

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

10. Vulnerable ecosystems
Multiple anthropogenic pressures on coral reefs are minimized, so as to maintain their integrity and functioning

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

10.2 By 2018, destructive fishing practices in coral reef areas banned and effectively enforced

Rationale for the National Target

Destructive fishing practices are in part a reason for reef decline in Mynamar. The surveys indicated that many reefs have less than 10% live hard coral cover,and are dominated by corallimorphs (soft-bodied coral that do not build hard skeletons) and algae growing on dead coral and rubble. In the northern archipelago, conditions appear to be better with hard corals making up 33% of coral cover on average and up to 80% in some areas. As a result, there is a clear need to improve enforcement of the laws that are in place to stop illegal practices. Use of dynamite, poisons and excessive fishing pressure have caused severe widespread damage to reefs in the Myeik archipelago.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

10. Vulnerable ecosystems
Multiple anthropogenic pressures on coral reefs are minimized, so as to maintain their integrity and functioning
Multiple anthropogenic pressures on other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning

Sub-Aichi Targets or Target components

6. Sustainable fisheries
Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems
The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, i.e. overfishing avoided

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	EN

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs)

Rationale for the National Target

While the global target is 17%, realistically moving from about 6% in 2010 to 17% by	EN

2020 would not be possible for Myanmar, while the national target of 8% is viewed as having a higher probability of success. Myanmar's 30-year National Forestry Master Plan set the national target for PA coverage at 10% of total land area by 2030. Currently, the Protection of Wildlife and Protected Areas Rules (2002) only recognizes one management type (IUCN Category 11), and one governance type (management by government). Amending the Protected Area Law or Rules, or revising the relevant instructions, would provide the legal basis for these changes. Recognizing co-management, community conserved areas, and sustainable use will require revisions and modifications of both policy and practice. Table 23 in the NBSAP illustrates the over- and under-representation of the current PAs in Myanmar, relative to an ecological zonation. Improving representativeness is a key goal for the national plan. While gazetted PAs represent a key form of protection, other formally recognized protection types, such as Ramsar Areas, wildlife sanctuaries, and World Heritage sites, provide some form of protection.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

11. Protected areas
At least 17 per cent of terrestrial and inland water areas are protected.
Areas of particular importance for biodiversity and ecosystem services protected
Protected areas are ecologically representative
Protected areas are effectively and equitably managed
Protected areas are well connected and integrated into the wider landscape and seascape

Sub-Aichi Targets or Target components

12. Preventing extinctions
Extinction of known threatened species has been prevented
The conservation status of those species most in decline has been improved and sustained

Relevant documents and information

Other relevant website address or attached documents

Forest Dept. PA site

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

Rationale for the National Target

Management planning is lacking in several of Myanmar's National Parks and so needs to be completed, along with PA staff training to enable effective PA management. Effective and equitable management of PAs is an essential component of Target 11. There are currently serious deficiencies in national capacity for PA management, including budgeting, staffing, equipment and capacity to implement collaborative management approaches. The global standard for measuring PA management effectiveness is the Management Effectiveness Tracking Tool {METT). Developed by GEF, METT is intended to report progress regarding management effectiveness of a PA in terms of context, planning, inputs, processes, outputs, and outcomes. The completion of a METT by all PAs is a crucial first step in identifying the strengths and weaknesses of each site, and determining what steps should be taken in order to improve management quality.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

11. Protected areas
At least 17 per cent of terrestrial and inland water areas are protected.
At least 10 per cent of coastal and marine areas are protected
Areas of particular importance for biodiversity and ecosystem services protected
Protected areas are effectively and equitably managed

11.4 By 2020, Myanmar's sites of premier conservation value are recognized by relevant international designations, through the designation of one natural WHS, three additional Ramsar sites, and one Biosphere Reserve

Rationale for the National Target

As Myanmar moves to protect its natural heritage areas, international recognition becomes an important tool to assist this effort. Myanmar joined the World Heritage Convention in 1994 but has only one World Heritage Site (WHS), Pyu Ancient Cities, which was inscribed as a cultural site in 2014. Despite its size and biological richness, Myanmar has no natural WHS. Myanmar joined the Ramsar Convention in 2005 but had only one Ramsar site, Moeyungyi Wetland Sanctuary, which was designated in 2005.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

11. Protected areas
At least 17 per cent of terrestrial and inland water areas are protected.
At least 10 per cent of coastal and marine areas are protected
Areas of particular importance for biodiversity and ecosystem services protected
Protected areas are ecologically representative
Protected areas are effectively and equitably managed

11.5 By 2020, a Marine Spatial Plan with nested MPAs is prepared for the Myeik Archipelago.

Rationale for the National Target

MPAs remain a large gap in Myanmar's PA system. To 2015, one national park (Lampi Island Marine National Park), three wildlife sanctuaries, two shark and three crab protection areas have been established. In total, MPAs in Myanmar currently cover approximately 13,650 km2 (2.6% of Myanmar's Exclusive Economic Zone), and leave important fisheries and coral reef areas unprotected. New MPAs are urgently needed to protect Myanmar's coastal ecosystems, particularly of coral reef ecosystems in the	EN

Myeik Archipelago.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

11. Protected areas
At least 10 per cent of coastal and marine areas are protected
Areas of particular importance for biodiversity and ecosystem services protected
Protected areas are ecologically representative
Protected areas are effectively and equitably managed
Protected areas are well connected and integrated into the wider landscape and seascape

Sub-Aichi Targets or Target components

12. Preventing extinctions
Extinction of known threatened species has been prevented
The conservation status of those species most in decline has been improved and sustained

Relevant documents and information

Other relevant website address or attached documents

Lampi MPA site

12.1 By 2020, the conservation status of priority, globally threatened species In Myanmar has improved

Rationale for the National Target

Myanmar is home to a rich diversity of species, including many endemics. Due in part to the historically slow pace of economic development, Myanmar has experienced significantly lower rates of deforestation and habitat loss than in neighbouring countries. However, many species have been virtually extirpated (e.g. tiger) or pushed to the brink of extinction (e.g. several species of freshwater turtle) by hunting for subsistence and, increasingly, illegal trade. Rapid economic growth triggered by political and economic reforms since 2010 will put further pressure on Myanmar's habitats and species, but also provide resources and opportunities to save them. If	EN

efforts to protect nationally and globally threatened species are not significantly improved in the near future, then it is very likely that Myanmar will experience the same pattern of species extirpations and extinctions that has been seen elsewhere in the region.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

12. Preventing extinctions
Extinction of known threatened species has been prevented
The conservation status of those species most in decline has been improved and sustained

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced

Rationale for the National Target

The trade in endangered wildlife is one of the greatest threats to biodiversity in Myanmar. As commercially valuable wildlife species have been wiped out in neighbouring countries, Myanmar has increasingly become a source of wildlife products. Particularly vulnerable are the country's endemic species, especially freshwater turtles and tortoises. By monitoring wildlife products in Mong La in Shan State since 2006, TRAFFIC has documented the significant trade in elephants, Asiatic bears, sun bears, tigers, leopards, snow leopards, cloud leopards, turtles, tortoises,	EN

and pangolins from Myanmar to its neighbours. In Mong La, Tachilek, and other border markets, there is essentially no enforcement of Myanmar's wildlife protection laws.	

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

12. Preventing extinctions
Extinction of known threatened species has been prevented
The conservation status of those species most in decline has been improved and sustained

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	EN

12.4 By 2020, conservation status of migratory species has been Improved

Rationale for the National Target

Myanmar is a stopping off location for numerous migratory birds, especially and in part as a result of large areas of tidal shores and an extensive coastline. While Myanmar does hold breeding populations of these species, migratory habitats are particularly important stopping-off locations for these species to rest and accumulate energy. Hence it is important to locate and sustain these important areas. Further, many species of marine animals, for example, some shark species, spend some time in Myanmar Territorial waters and require protection.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

12. Preventing extinctions
Extinction of known threatened species has been prevented
The conservation status of those species most in decline has been improved and sustained

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.

Rationale for the National Target

Collaborative research between the DAR and university researchers, farmer groups, and NGOs is needed to document and research local land races, identify hotspots for crop wild relatives, identify priority areas for in situ conservation, and develop a national strategy and action plan. There is no substitute for on-farm maintenance of genetic diversity and crop diversity. Much of the agricultural diversity in Myanmar is maintained by traditional farming practices, including rotational and fallow taungya, which maintains diverse crop varieties and non-timber forest products. An important effort is to identify priorities for in situ conservation, both in the wild for wild relatives, and on farms for key varieties.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

13. Agricultural biodiversity
The genetic diversity of cultivated plants is maintained
The genetic diversity of wild relatives is maintained
The genetic diversity of socio-economically as well as culturally valuable species is maintained
Strategies have been developed and implemented for minimizing genetic erosion and safeguarding genetic diversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

13.2 By 2020, ex situ conservation gaps have been addressed through collaborative research and collection programmes

Rationale for the National Target

Collaborative research between the DAR and university researchers, farmer groups, and NGOs is needed to document and research local land races, identify hotspots for crop wild relatives, identify priority areas for seed bank collections, and develop a national strategy and action plan. The establishment of seed saver networks is essential for the maintenance of crop diversity. Increasing the number and diversity of seeds, both in crop type and region, that are preserved is a priority for the Myanmar Seed Bank. Partnerships between DAR and other government departments (including the Department of Medicinal Plants and botany departments at universities), NGOs,	EN

farmer groups, and seed saver networks would improve documentation of agrobiodiversity and scope for ex situ conservation.	

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

13. Agricultural biodiversity
The genetic diversity of cultivated plants is maintained
The genetic diversity of wild relatives is maintained
The genetic diversity of socio-economically as well as culturally valuable species is maintained
Strategies have been developed and implemented for minimizing genetic erosion and safeguarding genetic diversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

13.3 By 2020, a crop wild relative action plan has been initiated

Rationale for the National Target

Crop wild relatives represent an important aspect for the long term preservation of genetic diversity for economically important species. In Myanmar, many varieties of rice and other plants exists in ever-diminishing habitats. Loss of habitat for crop wild relatives, caused by expansion of monoculture crops and other land use changes, is a threat to agrobiodiversity. Hotspots of crop wild relatives should be identified throughout the country in collaboration with civil society, including farmer's networks, in order to document their diversity and direct efforts for collaborative research and	EN

preservation.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

13. Agricultural biodiversity
The genetic diversity of cultivated plants is maintained
The genetic diversity of wild relatives is maintained
The genetic diversity of socio-economically as well as culturally valuable species is maintained
Strategies have been developed and implemented for minimizing genetic erosion and safeguarding genetic diversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

13.4 By 2020, incentives and programmes to conserve the genetic diversity of livestock are established to address current gaps

Rationale for the National Target

Conservation of traditional livestock breeds and their genetic diversity can follow a similar framework. Collaborative research with livestock owners, the private sector, national and international research institutions, and NGOs working on rural livelihood improvement can strengthen the scale and impact of ex situ livestock research and conservation.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

13. Agricultural biodiversity
The genetic diversity of farmed and domesticated animals is maintained

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

15.1 By 2020, over 130,000 hectares of forest have been placed under community forestry

Rationale for the National Target

Virtually all of Myanmar's more accessible forests are shrinking rapidly in both extent and quality. The FAO FRA shows forest cover declining from 58% in 1990 to 45% in 2015. The Forestry Department is committed to a path of forest recovery through greater community participation. But community forests, the Department's only administrative means of engaging local communities in forest management, has progressed so slowly since the CFI was issued in 1995. A new policy model is required that can rapidly expand public participation in forest restoration and protection over large areas. Under the 1995 CFI, about Bo,ooo hectares have been brought under community management, and most community forests are smaller than 100 ha. The National Forestry Master Plan sets a target of g8o,ooo ha of community forest established by	EN

2030. To address the imminent threats to Myanmar's forests, a total of at least 1,ooo,ooo ha needs to be brought under some form of community management, which implies the allocation of a much larger areas of forest. Some of this could be sustainably harvested and processed to meet local timber demand; most needs to be protected and allowed to regenerate naturally.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

15. Ecosystem resilience
Ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced through conservation and restoration
At least 15 per cent of degraded ecosystems are restored, contributing to climate change mitigation and adaptation, and to combating desertification

Sub-Aichi Targets or Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
Degradation and fragmentation are significantly reduced
7. Areas under sustainable management
Areas under forestry are managed sustainably, ensuring conservation of biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

15.2 By 2018, guidelines for a national forest restoration

programme that incorporates best international practice formally adopted by government and pilot project initiated

Rationale for the National Target

Starting in 2010, logging accelerated in anticipation of a log export ban that was finally introduced in 2014. From a commercial perspective, Myanmar's forests are now almost 'logged out', as shown by the number of wood processing plants that are struggling to secure adequate high quality timber supplies and the gradual switch to processing lower quality plantation wood. Meanwhile, road building has opened up new areas of forest to logging and conversion. One of the greatest threats to the remaining forest is forest clearing and conversion: for concessions to convert land to rubber, oil palm, betel nut and other agro-forestry plantations and also to a lesser extent the expansion of smallholder agriculture. Large areas of forest have now passed through a degradation continuum where they have been logged over so many times that conversion to plantation or agriculture, combined with substantial insecurity of tenure and in some cases conflict, is the likely next step. Myanmar's forests are now at a cross-roads: will they continue to suffer continued degradation and loss or recover through a process of regeneration at a scale that can make a difference and in a way that is supported by local communities? A large scale forest restoration initiative is needed, under the leadership of the Forestry Department, which builds on and adapts successful models to the Myanmar context. The initiative would work with local communities for win-win outcomes that include improved land, tree and forest tenure security, guaranteed economic benefits in the short, medium, and long terms, and prioritization of wider ecosystem service benefits (e.g. biodiversity, hydrology, and carbon sequestration).	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

15. Ecosystem resilience
Ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced through conservation and restoration
At least 15 per cent of degraded ecosystems are restored, contributing to climate change mitigation and adaptation, and to combating desertification

Sub-Aichi Targets or Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
Degradation and fragmentation are significantly reduced
7. Areas under sustainable management
Areas under forestry are managed sustainably, ensuring conservation of biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

15.3 By 2020, REDD+ Readiness Road Map is actively being implemented

Rationale for the National Target

The RECC+ iniaitive, guided by the UNFCCC provides a mechanism, especially for tropical developing countries like Myanmar, to take advantage of funding to assist with forest recovery in oredr to enhance carbon sequestration and storgae at a global scale. This targets fits well with the over all habitat recovery agenda of Aichi Target 15.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

15. Ecosystem resilience
Ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced through conservation and restoration

At least 15 per cent of degraded ecosystems are restored, contributing to climate change mitigation and adaptation, and to combating desertification

Sub-Aichi Targets or Target components

5. Loss of habitats
The rate of loss of forests is at least halved and where feasible brought close to zero
The loss of all habitats is at least halved and where feasible brought close to zero
Degradation and fragmentation are significantly reduced
7. Areas under sustainable management
Areas under forestry are managed sustainably, ensuring conservation of biodiversity

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Rationale for the National Target

This target is essentially Aichi Target 16, with the individual components divided into actions.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

16. Nagoya Protocol on ABS

The Nagoya Protocol is in force
The Nagoya Protocol is operational, consistent with national legislation

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

17.2 By 2016, the institutional mechanisms to ensure effective implementation and monitoring of the NBSAP are in place and functioning effectively

Rationale for the National Target

Successful implementation of the NBSAP requires the involvement of different government ministries and departments, and the engagement of civil society and the private sector. There will be a need to build awareness and support for the NBSAP among multiple stakeholders, and to create effective coordination, monitoring and evaluation mechanisms at multiple levels. State-level BSAPs that reflect regional and local priorities are also considered, as mechanisms for promoting implementation at the sub-national level.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

17. NBSAPs
NBSAPs adopted as effective policy instrument
NBSAPs are being implemented

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

17.4 There is an improved national awareness of the NBSAP as a result of the application of a communications plan

Rationale for the National Target

For the NBSAP to be an effective policy tool, high level government officials, government departments and the public need to be aware of its contents and the agenda for its application. A communications plan and its application are needed to ensure high awareness within Myanmar of the NBSAP. The actions recommended to achieve the national biodiversity targets will require the revision of annual work plans to reflect new projects and priorities, including EIA review, community forestry (CF), forest restoration, and increased time spent working with civil society and communities. Staff time must be allocated for consultation processes in order for consultations to be meaningful and effective.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

17. NBSAPs
NBSAPs adopted as effective policy instrument
NBSAPs are being implemented

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational

Rationale for the National Target

The recognition of customary tenure and traditional systems of governance is fundamental to the promotion of traditional practices that benefit conservation and encourage sustainable use of resources.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

18. Traditional knowledge
Traditional knowledge, innovations and practices of indigenous and local communities are respected
Traditional knowledge, innovations and practices are fully integrated and reflected in implementation of the Convention
With the full and effective participation of indigenous and local communities

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to	EN

biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	

18.3 By 2020, traditional knowledge documented, recognized, promoted, and protected through incorporation into education and conservation outreach education

Rationale for the National Target

Traditional knowledge and practices that contribute to conservation include the protection of sacred forests, lakes, rivers, and caves, taboos on hunting certain species, and the maintenance of watershed protection forests. Practices that contribute to sustainable use include hunting and fishing reduction during breeding seasons, no-take fishing zones and gear restrictions in spawning areas, rotational and fallows taungya, and indigenous silviculture and agroforestry techniques. Conservation tools to recognize and strengthen these traditional practices include recognition of customary tenure, co-management of PAs, ICCAs, and community forestry. Conservation projects should work with and be responsive to cultural traditions and beliefs about the environment. As a cross-cutting theme, traditional knowledge and customary practices can contribute to each of the other N BSAP targets.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

18. Traditional knowledge
Traditional knowledge, innovations and practices of indigenous and local communities are respected
Traditional knowledge, innovations and practices are fully integrated and reflected in implementation of the Convention
With the full and effective participation of indigenous and local communities

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology

Rationale for the National Target

Aichi Target 19 is about increased knowledge and science base for understanding and managing biodiversity. The best place to begin increased understanding of biodiversity is through the education system by establishing junior and advanced courses in conservation biology. Myanmar's past isolation from the international community has had a serious impact on the quality of its higher education system, with many institutions requiring significant improvement to meet international academic standards. Reform of the higher education system is a national priority. Despite the many challenges, small-scale interactions with universities will help not only to address a number of immediate needs, but also to create partnerships that can lay the groundwork for larger engagements. International NGOs can play a vital role in fostering these partnerships, including with advanced regional universities such as Chiang Mai University and Prince of Songkla University in Thailand. For example, the establishment of an international MS programme on biodiversity conservation in one or more universities would substantially increase the quantity and quality of young conservation biologists.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

19. Biodiversity knowledge

Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

20.1 By 2020, the funding available for biodiversity from all sources is increased by 50%

Rationale for the National Target

Myanmar set an specific objective to increase the funds available in the country during the period of the NBSAP (2015-2020). As an example of the need for increased conservation funding, while government funding to PA rose by around 50% in real terms between 2010 and 2015, and externally-funded grants and projects increased even more steeply (almost US$20 million was committed in 2014), there remains a critical shortage of funds. Only half of PAs have a dedicated budget or staff. Even those that receive regular funding are for the most part unable to cover the costs of basic infrastructure, equipment, maintenance and operations, and cannot afford to implement essential on-the-ground conservation activities. Further, almost all measures reported here require additional funding or staff to complete.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

20. Resource mobilization
Mobilization of financial resources implementing the Strategic Plan for Biodiversity from all sources have increased substantially from 2010 levels

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions.	EN

20.2 By 2018, donor and partner funding for biodiversity is better coordinated and implemented

Rationale for the National Target

Increased funding is one issue, but with several government ministries and departments having various mandates for biodiversity and with several NGOs and IGOs working in the country, a mechanism is needed to coordinate among agencies and to avoid duplication of effort.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

20. Resource mobilization
Mobilization of financial resources implementing the Strategic Plan for Biodiversity from all sources have increased substantially from 2010 levels

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-	EN

v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	

10.2 By 2018, destructive fishing practices in coral reef areas banned and effectively enforced

Rationale for the National Target

Certain fishing practices damage and destroy coral reefs, including the use of poisons, dynamite and destructive gear. Coral reefs are essential habitats for a wide range of marine life, including the corals themselves. The reefs buffers islands and the coast from storms so are important in shoreline stability.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

10. Vulnerable ecosystems
Multiple anthropogenic pressures on coral reefs are minimized, so as to maintain their integrity and functioning
At least 10 per cent of coastal and marine areas are protected

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets	EN

and indicators were conducted with central government departments, NGOs, research institutes and academic institutions

17.1 By 2016, the NBSAP is adopted by Cabinet as the nation's over-arching policy framework for the conservation and sustainable use of biodiversity

Rationale for the National Target

Cabinet acceptance as policy enables universal application of the plan by government. EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

17. NBSAPs
NBSAPs adopted as effective policy instrument
NBSAPs are being implemented

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions EN

17.3 By 2020, BSAPs are under preparation in at least three states/ regions.

Rationale for the National Target

Concurrent and complementary biodiversity policies at national and state levels ensures that similar and cooperative planning for conservation can be achieved.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

17. NBSAPs
NBSAPs adopted as effective policy instrument
NBSAPs are being implemented

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

18.2 By 2020, FPIC principles are institutionalized in government, private sector, and donor programmes

Rationale for the National Target

According to UN DRIP, conservation and development projects must consult affected communities and those communities have the right to give or withhold FPIC. This principle can be used to strengthen existing consultation processes, and is particularly relevant for the establishment of PAs and the review of EIAs. MOECAF has already	EN

affirmed its support of FPIC and has begun to develop guidelines and build capacity for FPIC through implementation of the REDD+ Readiness Roadmap. The REDD+ Engagement and Safeguards Technical Working group has been tasked with developing FPIC guidelines for REDD+ projects. These guidelines can be used to incorporate FPIC into other conservation activities, particularly PA establishment and governance. They can also be applied to review of EIA and SIAs by ECD. Training of ECD staff on environmental and social standards should include FPIC as international best practice for consultation processes. Other ministries whose work could significantly impact indigenous groups should also affirm and take steps to institutionalize FPIC in planning and implementation of projects.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

18. Traditional knowledge
Traditional knowledge, innovations and practices of indigenous and local communities are respected
Traditional knowledge, innovations and practices are fully integrated and reflected in implementation of the Convention
With the full and effective participation of indigenous and local communities

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

19.1 By 2016, a CHM web portal is established

Rationale for the National Target

A national CHM portal would enable rapid uploading and sharing of biodiversity data for the country.	EN

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

19. Biodiversity knowledge
Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

19.2 By 2020, a national forest cover change 2015-2020 database developed using international standard methods, and made publicly available online

Rationale for the National Target

For the next Global Forest Resources Assessment, forest cover change will have to be calculated. Further, with advances in forest mapping, and with existing online	EN

databases, the creation of a national online dataset is a logical progresion for expediting the sharing of forest cover data.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

19. Biodiversity knowledge
Biodiversity knowledge, the science base and technologies are widely shared and transferred and applied

Sub-Aichi Targets or Target components

The rate of loss of forests is at least halved and where feasible brought close to zero
Areas under forestry are managed sustainably, ensuring conservation of biodiversity
At least 15 per cent of degraded ecosystems are restored, contributing to climate change mitigation and adaptation, and to combating desertification

Relevant documents and information

National Targets are all in the NBSAP (https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf). The baseline information and data used for targets development were provided by government departments, NGOs, and academic institutions, as well being derived from national and regional reports of biodiversity projects. Issues related to biodiversity and ecosystems were identified and prioritized through consultations at the central level, as well as at state and regional levels, and they were considered in setting national targets and linking these with global targets. Consultations on national targets and indicators were conducted with central government departments, NGOs, research institutes and academic institutions	EN

Section II. Implementation measures, their effectiveness, and associated obstacles and scientific and technical needs to achieve national targets

1.1.1 Draft and disseminate briefing documents to national and state/region parliaments

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Numerous briefings were given to national politicians over the past 3 years to assist in understanding biodiversity issues related to a new conservation law. This law was enacted in 2018 through the national parliament entitled the “The Conservation of Biodiversity and Protected Areas Law”. There is also a ‘National Environmental Policy’ in draft form for discussion (attached) and a revised Forest Law was enacted in 2018

Biodiversity briefings were conducted, with materials supplied in Myanmar language, by the Ministry of Natural Resources and Environmental Conservation (MONREC) to Regional Governments from Kachin, Mon, and Kayin States and Sagaing, Magwe, and Mandalay Region. The purpose of these briefings was to raise the awareness of regional politicians and governments about the NBSAP, efforts towards conservation, and the values that the country derives from biodiversity.

EN

National Target(s)

1.1 By 2018, awareness of biodiversity values in key decision makers and line agencies has been improved.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

We have no data by which to assess the effectiveness of the presentation to regional governments. However, at the national level the successful passing of the new conservation law indicates a high awareness of biodiversity issues among national politicians.

EN

Relevant websites, links, and files

national-environmental-policy-statement-2016_eng_nov20_final.pdf

Obstacles and scientific and technical needs related to the measure taken

None.

EN

1.1.2 Establish a national working group chaired by MONREC and state/regional working groups to share information and communicate activities related to biodiversity and the natural environment.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The National Biodiversity Conservation Committee was established in 2016 to coordinate activities. This committee chaired by MONREC meets as required and has been a successful committee. There is also a National Coastal and Marine Resources Management Committee that was recently established to oversee management of coastal marine areas. EN

National Target(s)

1.1 By 2018, awareness of biodiversity values in key decision makers and line agencies has been improved.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The committee has been established at the national level but some state committees are lacking. EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

1.1.3 Strengthen capacity of MOECAF's outreach unit to communicate biodiversity values

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Materials have been developed to educate protected areas staffs and one training session by for ‘Strengthening Capacity of Environmental Education Staff of Protected Areas’ was held in November 2015, at Popa Mountain Park. The training was organized with the following objectives;
? - Strengthen the skills of education staff from PAs, particularly in the community participatory education program. Learning the Ai and APPA methodology.
? - Understanding, identify, and relate to the values and benefits of ecosystem services and local and traditional knowledge.
? - Working and building alliances with local communities. Community participatory education. Raising awareness through effective communication and interpretation
Total participants were 35, with 11 women.

Nature and Wildlife Conservation Division (NWCD) of the Forest Department (FD) EN

is opening six-week capacity building trainings for PA staff, and public education is one of the core element of the training. There are public information centres in Hkakaborazi National Park, Popa Mountain Park, Chatthin Wildlife Sanctuary, Lampi Marine National Park, Hukaung Valley Wildlife Sanctuary and in four wetland protected areas such as Moeyungyi, Meinmahla Kyun, Indawgyi and Inlay, which are also Ramsar Sites. In addition, some protected areas such as Shwesettaw WS, Alaungdaw Kathapa National Park are opening temporary public education centres during the respective pagoda festivals. Also, at Hkakaborazi National Park, there is a Community Information Resource Centre that has been developed to strengthen the capacity of the local community to co-manage the park and contribute to biodiversity conservation (see attached).

National Target(s)

1.1 By 2018, awareness of biodiversity values in key decision makers and line agencies has been improved.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

So far only one training session has been held at one PA and there was no work with the public reported. However, as the work expands as noted above much more training will be provided during the nest 2 years.

EN

Relevant websites, links, and files

Reptile species in PAs.JPG
Mammal species in PAs.JPG
NBSAP flyer in Myanmar language.jpg
CIRC Hkaka 1.jpg (Community resource centre)
CIRC Hkaka 2.jpg (Community Resource centre 2)

1.2.1 Work with business associations in relevant sectors, business education providers, and international and local networks such as the UN Global Compact Local Network and Green Economy Green Growth to raise awareness of biodiversity through Business Ecosystem Training (BET) .

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Most work to date has been with the ecotourism industry but see Target 2 for new measures taken for environmental impact assessment. For the ecotourism

EN

industry in Myanmar, Myanmar Ecotourism Policy and Management Strategy (2015-2025), was developed by the MoNREC and Ministry Hotels and Tourism (MoHT) under the financial and technical support of the International Centre for Integrated Mountain Development (ICIMOD). The Myanmar Ecotourism Policy and Management Strategy on strengthening protected area management is aligned with the National Forest Master Plan (2001-2030), the National Biodiversity Strategy and Action Plan 2015-2020, and the Biodiversity Conservation Investment Vision (WCS 2013). Building on the Government's socioeconomic, tourism, biodiversity, forestry and climate change frameworks, this Policy and Strategy focuses specifically on the relationship between tourism and protected areas relationship. Its recommendations are based on an extensive review of strategic issues currently shaping this policy arena, including an assessment of destinations designated for ecotourism by the Union Government. Recognizing the critical importance of 'getting ecotourism right from the outset', the Policy and Strategy sets out a long-term vision for the sector, together with a 10-year management strategy that establishes the foundations for managing the tourism and protected areas sector. Special consideration is given to tourism in and around Myanmar's protected areas due to the critical role that these special areas have in promoting local, national and global sustainability. Individual protected areas are part of national protected area networks, which are formed to conserve representative examples of nature-based assets and ecosystems. The document provides a list of 22 officially designated ecotourism sites, with a separate document that provides a status and update on conditions for each of the designated sites.

MCRB and FFI conducted 3 multi-stakeholder workshops on sustainable tourism in Taninthayi (2017) attended by representatives from the regional government, local people involved in the tourism industry, and international and Myanmar tourism experts (60, 90, and 120 participants per each workshop). In addition, MCRB and Hans Seidel Foundation (HSF) and Myanmar Responsible Tourism Institute (MRTI) held two multi-stakeholder workshops on sustainable tourism in Ngapali in 2016 and 2017 attended by 170 people in total. Guidelines for ecolodges were developed by MONREC and ICIMOD, and disseminated at these meetings. In total 76 people have been trained on conducting tourism related to conservation and biodiversity.
The Biodiversity and Nature Conservation Association (BANCA) together with NWCD did a report for the Mount Popa area entitled "Report on the ecotourism assessment of Popa Mountain Park" to help develop community-based ecotourism" in that park.

National Target(s)

1.2 By 2018, the private sector has an enhanced understanding of the value of biodiversity and relation to business practices

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

We have no data as yet to assess the effectiveness of the ecotourism efforts. EN

Relevant websites, links, and files

RESPONSIBLE TOURISM STRATEGY for TANINTHARYI.pdf (FFI)
Ecotourism report- Mt. Popa.pdf (BANCA)
Status Report on Myanmar Designated Ecotourism Sites 2015..pdf (official ecotourism sites status)
MYANMAR-Ecotourism-Policy-and-Management-Strategy-for-Protected-Areas-2015-2025.pdf

1.3.1 Hold media training events focused on environmental issues and reporting

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Two events have been held to train media personnel on biodiversity issues, both by WCS and MONREC in 2018. One on wildlife trade problems and one on environmental issues:
- Media training in Lasho with 22 people: male 15, female 5
- Media training in Mandalay with 21 people: male 14, female 7

EN

National Target(s)

1.3 By 2017, the media have an improved understanding of and capacity to communicate topics related to biodiversity

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There are no data to assess effectiveness of the training, but both sessions were well-attended. EN

Obstacles and scientific and technical needs related to the measure taken

Time, funding and capacity to organize and travel to meetings. EN

1.4.1 Increase number of annual discussions, outreach, and extension activities with local communities living in and around PAs

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Up to May of 2018, 13 workshops have been held by Wildlife Conservation Society, along with 31 training sessions. These efforts were designed to educate people living near protected areas on alternative livelihoods and conserving ecosystem values in protected areas. In addition these workshops explored ecotourism opportunities. A very large number of people attended these workshops over the past 5 years (Table below). The Biodiversity and Nature Conservation Association (BANCA) has started working at Kelatha Wildlife Sanctuary where ecosystem services were identified in order to implement a co-management system where local communities from nearby villages participate for conservation of the Sanctuary. As a next step, capacity building on conservation education and organization development for sustainability will be provided for the local community management group. Under the Popa Mountain Park Management Plan, Biodiversity and Nature Conservation Association together with Popa Mountain Park under Nature and Wildlife Conservation Division (NWCD) studies and surveys were conducted to understand gaps in knowledge of local communities near this protected area and possible opportunities for knowledge sharing, local community's dependence on the area, and to identify short-term and long-term plans for development of local communities. The EU has a project to reduce the poverty of 5 communities near the Chatthin Wildlife Sanctuary and the impact of local people on the resources of vulnerable dry dipterocarp forest and its associated endemic-species Eld’s deer (Rucervus eldi thamin). The specific objectives of the project are to strengthen the capacity of local communities in environmental conservation and food productivity, and (2) to introduce the new livelihood practices and sustainable use of natural resources.

The various training sessions are aimed at various aspects of co-management of protected areas (see Target 12 for more information with respect to co-management).

Year	Number of activities	No. Attending
2014/15	176	12828
2015/16	163	13799
2016/17	199	15803
2017/18	273	25556
2018/19	273	4378 (up to May 2018)

EN

National Target(s)

1.4 By 2020, local communities in and around PAs have enhanced opportunities to share knowledge and participate in management activities

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The target "to increase" has been met although there are no data as yet to assess effectiveness, however, the very large number of attendees to these events suggests very strong local interest. (See Target 12) EN

1.5.1 Improve curricula covering biodiversity relayed topics and integrate into educational activities

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There has been progress at several universities - see 19.3.1 for details. EN

National Target(s)

1.5 By 2020, primary and secondary curricula have incorporated biodiversity values

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

See 19.3.1 EN

Obstacles and scientific and technical needs related to the measure taken

Unknown EN

1.4.2 Appoint well-known Myanmar artists as 'biodiversity ambassadors' to raise awareness of biodiversity values and Culture share information with communities through art and entertainment

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

An artist has been designated as the “wild elephant ambassador” in an effort to raise the profile of this declining species. This is a coordinated effort in the ‘Voices for Momos (elephants)’ campaign organized by a coalition of conservation organizations including World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS) and Fauna and Flora International (FFI), to raise awareness for elephant conservation. Most elephant poaching in Myanmar occurs in the Ayeyawady and Bago region, where populations are declining (see Target 12 for data). EN

National Target(s)

1.4 By 2020, local communities in and around PAs have enhanced opportunities to share knowledge and participate in management activities

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There is no information on effectiveness but this is part of the overall effort to raise public awareness of declining biodiversity in Myanmar. EN

1.5.1 Improve curricula covering biodiversity-related topics and integrate into educational activities.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There is little information available as to how many school curricula have been altered to incorporate biodiversity values, or that make use of translated references. In the case of Yangon, for example, a UNDP survey of 10 schools indicated that no state-owned primary and secondary school has environmental conservation (or related) subjects in their curriculum. EN

National Target(s)

1.5 By 2020, primary and secondary curricula have incorporated biodiversity values

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

Unknown but likely insufficient capacity and priority to enable inter-ministerial cooperation.	EN

1.5.2 Translate and make available key existing biodiversity references in Myanmar language

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

As a part of the effort to educate the public, especially the student population about wildlife and conservation, The Forestry Department of MOECAF has had several key references on conservation issues translated into Myanmar language. These include: - NBSAP policy brief - NBSAP - Myanmar Elephant Conservation Action Plan (2018-2027) - National Wetland Policy and Strategic Actions (Draft) - Myanmar Ecotourism Policy Management Strategy - National Land Use Policy (2016) - National Tiger Action Plan (draft 2018) - ASEAN Center for Biodiversity (ACB)'s Policy Brief Series (2018): Inland Waters: ASEAN's most threatened ecosystems	EN

National Target(s)

1.4 By 2020, local communities in and around PAs have enhanced opportunities to share knowledge and participate in management activities
1.5 By 2020, primary and secondary curricula have incorporated biodiversity values

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There are no data to assess the influence of this measure as yet, however, it is important to translate as much material on conservation as possible into Myanmar language to disseminate to the public.	EN

Relevant websites, links, and files

Myanmar NBSAP flyer FINAL March 2016_Burmese.pdf (Myanmar language NBSAP flyer)

2.1.1 Take steps to formalize natural capital accounting and conduct national capital assessment

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

While this target has not been met yet, WWF and the Planning Department of Ministry of Planning and Finance have organized some capacity building training for introducing and assessment of natural capital. Further, there have been some attempts to quantify the values associated with ecosystem services and capacity development. One study assessed the value of ecosystem services at the Moeyungyi Wetland on valuation of ecological services (done by Banca, Peh et al. 2015), which is included in this report as a case study. There is a current ecosystem service study on the Chindwin River Basin (see attached link), A second study from 2013 valued ecosystem services from forests, with projections to 2031 for Myanmar forests (Emerton and Yan Ming Aung 2013). This study indicated that there are considerable economic benefits to be gained from investing in forest conservation and sustainable use rather than continuing to degrade and deforest, as in the past. The authors evaluated multiple ecosystem services including wood and non-wood products, tourism, pollination, carbon, mangrove shoreline protection, watershed protection, and mangrove fisheries. Over the next 20 years, the net gain or value-added to the economy from choosing to invest in forest conservation, rather than to allow forests to continue to be degraded was estimated to be around MMK 21 trillion (US$ 22 billion) by 2031, with a Net Present Value of MMK 9 trillion (US$ 10 billion). Scenarios of continued forest degradation indicated possible losses of scenario could incur losses to 2031 of more than MMK 16 trillion (US$ 17 billion), with short-term gains realised until about 2017, with linear decline after that. With Wildlife Conservation Society, the government has a natural capital account for forest that is well underway and expected to be completed in June 2018. This is in parallel with the Government's Green Economy Policy Framework, designed with WWF's support, which provides guidance on green investments. WWF provided technical training on natural capital accounting to 30 government officials. Prior to this review period, the BOBLME project evaluated marine and coastal services at US$8.5 billion/year.	EN

National Target(s)

2.1 By 2018, Myanmar has made a formal commitment to natural capital accounting and has taken significant steps to integrate the value of biodiversity and ecosystem services Into Its national accounts

2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The two studies as well as the interest from the Planning and Budgetting Ministry indicate that capacity has increased. EN

Relevant websites, links, and files

Chindwin River ecosystem services study 2017-19
Emerton and Yan Min Aung. 2013. Economic valuation Myanmar forests

Other relevant information

Valuation of Ecosystem Services at Moeyungyi Wetland (supported by BANCA and Birdlife International):

The Moeyungyi Wetland is a 10,360 ha wildlife sanctuary in the southern Bago region of Myanmar, and is a reservoir that was constructed more than 100 years ago to store water for irrigation. Over the past decades the lake and associated wetlands have become an important habitat for resident and migratory birds and, as a result, it was declared a Ramsar site in 2004. The area is occupied more than 65,000 people in 17 villages, with more than 70% of these people dependent on the wetland for their livelihoods. These livelihoods consist of fishing, water buffalo and cattle grazing, cultivation of rice for subsistence, harvesting of padoma lotus, duck-rearing, rice milling, and industry for Ngapi (fish paste), cheroot (tobacco), lotus textiles and dried stalks of pein (Taro). More recently, a wildlife viewing and tourism industry has developed, including several hotels catering to bird-watchers on the lake and area.

The Moeyungyi Wetland Sanctuary provides numerous ecosystem services, including fresh water and water for irrigation of rice paddies, fish and lotus harvesting, food for domestic ducks and water buffalo, tourism, and climate regulation through carbon storage. The value of these services was measured using the 'Toolkit for Ecosystem Site-based Assessment (TESSA), in a study published in 2015. This research project found the following results for ecosystem service values: water: $8.5 million, food and other harvests: $16.2 million, cultivated goods (rice): $0.4 million, tourism: $0.07 million, and carbon: $91.6 million. This was offset by emissions of $3.1 million and management costs of $0.2 million; for a net conservative total value of $22.1 million in direct value (>$2000/ha/yr), plus $91.6 million in carbon stored. The authors recognized that their study did not include all ecosystem services and needs to be also viewed in the broader landscape scale context owing to downstream affects as well. EN

Nevertheless, this work illustrates well the role of natural system in providing livelihoods for local communities while benefiting wildlife and biodiversity more generally.

Other relevant website address or attached documents

Moeyungyi Wetland Economic Valuation 2015 - MOEJ.pdf (valuation)
Natural capital Myanmar WWF.pdf

Obstacles and scientific and technical needs related to the measure taken

Obstacles include data on the value of ecosystem services, a mechanism to incorporate ecosystem services into national accounting, and funding to support the initiative. EN

2.1.2 Implement the necessary steps to become an EITI compliant country

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

2.1.2 duplicates 2.4.1 see below EN

National Target(s)

2.4 By 2017, Myanmar has been assessed as an EITI compliant country

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

See 2.4.1 EN

2.1.3 Incorporation of biodiversity and ecosystem services assessment in development plans.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

FD and Shwe Taung Cement Co., Ltd. are preparing a draft agreement to implement a biodiversity offset program for cement and coal mine concessions. This is a very important initiative to involve the private sector in conservation, as well as a good demonstration for complying with the environmental management EN

plan of the Environmental Impact Assessment Report.

FD leased about 100 acres of land from Lampi Marine National Park to Benchmade Asia (Myanmar) Ltd. for ecotourism. Benchmade Asia (Myanmar) Ltd. allocates 20% of the profits to the protection of Lampi Marine National Park.

National Target(s)

2.1 By 2018, Myanmar has made a formal commitment to natural capital accounting and has taken significant steps to integrate the value of biodiversity and ecosystem services Into Its national accounts

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

A first agreement has been established, setting a precedent for future agreements. EN

Relevant websites, links, and files

http://www.shwetaunggroup.com/wp-content/uploads/2017/04/Supplementary-ESIA-Report.pdf

Obstacles and scientific and technical needs related to the measure taken

Obstacles include data on the value of ecosystem services, a mechanism to incorporate ecosystem services into national accounting, and funding to support the initiative. EN

2.2.1 Identify and start to work with at least two states/regions on incorporating biodiversity into integrated land use plans

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

2.2.2 Prepare non-binding guidelines for incorporating biodiversity into land use plans and key sectors in at least two states/regions and provide capacity training to increase their use

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

2.3.1 Review the implementation of the EIA Procedures with a focus on improving effective regulation, enforcement, transparency and community participation, particularly in environmental monitoring, and the assessment of cumulative impacts.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There is an EIA Procedure governing EIA processes that was revised in 2015 and sector-wide impact assessment guidelines are being prepared. To promote participation of local communities in EIA, guidelines on public participation (now in draft form) were developed in cooperation with Vermont Law School (VLS). Further, Environmental and Social Impact Assessment Guidelines for Hydropower Projects in Myanmar is being prepared by Environmental Conservation Department and International Finance Corporation (IFC). Capacity increases within government to review and assess EIAs have been made, but overall capacity remains low and so monitoring and enforcement of EMPs does not yet happen. There are amended rules for mining to address environmental impacts EN

and contribute to a remediation fund, and a consultation process for EIA in the mining sector was started in 2018. JICA provided support for the EIA process development and development of guidelines (see attached)

Myanmar Environmental Assessment Association (MEAA), founded in 2018, is a non-political and non-profit organisation for Myanmar consultants engaged in Environmental Impact Assessment procedure. MEAA's members currently include registered EIA agencies, national consultants, academics and others. The Myanmar Impact Assessment Association provides assistance to businesses for developing their EIAs.

Recently the Myanmar Centre for Responsible Business published a review of biodiversity as it pertains to several industries in Myanmar and is in the process of preparing a series of guidelines for oil and gas, tourism, mining, and agriculture. The aim of these guidelines is to assist these industries in consideration of biodiversity issues and human rights in their business and development planning.

National Target(s)

2.3 By 2018, the government has significantly enhanced its capacity to review and assess EIAs and monitor and enforce EMPs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There have been steps forward and the completion of some EIAs (see 2.1.3 for an example). EN

Relevant websites, links, and files

http://www.myanmar-responsiblebusiness.org/pdf/resources/Briefing-Paper-Biodiversity_draft_en.pdf
EIA public note.pdf (JICA and ECD public note on EIA)

Obstacles and scientific and technical needs related to the measure taken

Lack of capacity is the major issue faced by government in the development and enforcement of EIA requirements. EN

2.3.2 Establish and hold annual or more frequent EIA training course for staff responsible for EIA review, monitoring, and enforcement.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

A large effort has been made in Myanmar to improve government staff and local business knowledge about EIA requirements, report writing, report reviewing and enforcement as a result of efforts by the 'Environmental Conservation Division', with assistance and efforts from Japanese International Development Assistance (JICA), Asian Development Bank (ADB), Norwegian Environment Agency, WWF, and the Myanmar Centre for Responsible Business (MCRB). More than 36 training sessions have been delivered to national and regional staff and to businesses in Yangon and Mandalay. For the business training more than 100 people attended these two sessions. Training on the application of GIS to EIA was provided to national and regional government staff at three sessions. Other training to government staff included: environmental impact assessment reporting, how to review reports, enforcement, and marine data availability, including field visits to mines and oil and gas developments. As an example, a training session on ‘Good Practices for Mine Waste Water & Waste Rock Management’ was conducted in 2018 for 45 participants from all ECD divisions, ECD head office and regional/state offices of Department of Mines, along with business owners and third parties, with assistance from ADB, WWF and MCRB. MCRB has been seeking to build understanding of the links between business, biodiversity, and human rights in Myanmar, particularly the right to livelihood, with the aim of raising awareness of how to avoid, reduce, mitigate and offset these in business activity. In 2018, two biodiversity, business and human rights events were organised by MCRB in Yangon: a multi-stakeholder consultation on the draft Briefing Paper (attached), and a training session conducted by a number of international experts on biodiversity and environmental impact assessment (EIA) for around 70 representatives from companies, particularly EIA consultancies. The Briefing Paper (October 2018) aims to raise awareness among businesses, civil society and government, particularly regulators, of how business activities in Myanmar impact on biodiversity and how this is linked to human rights.	EN

National Target(s)

2.3 By 2018, the government has significantly enhanced its capacity to review and assess EIAs and monitor and enforce EMPs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

There have been more than 36 training sessions for national and regional staff and local businesses on various aspects of environmental impact assessment reporting, how to review reports, enforcement, data availability, and GIS	EN

improvement. More than 60 national and regional/state staff have been trained and information sessions were provided to more than 200 representatives of businesses on EIA reporting.

Relevant websites, links, and files

MCRB: Business biodiversity and human rights 2018

2.3.3 Design and establish a national biodiversity database using the latest land cover, habitat, and species data

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Several maps are now available including; protected areas, key biodiversity areas, forest cover, corridors, and ecosystem types. In addition, forest cover and intact forest mapping is available from the global datasets, and the recent intact forests change map is included here. There are numerous databases for biodiversity among NGOs and government but these have not yet been consolidated into a national database.

Wildlife Conservation Society is in the process of developing an ecosystem classification (64 types) and mapping for Myanmar, but the project is not yet completed.

EN

National Target(s)

2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning
2.3 By 2018, the government has significantly enhanced its capacity to review and assess EIAs and monitor and enforce EMPs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Some large scale maps are available in the Forest Department of MOECAF, but data on species distribution mapping and fine-scale ecosystems is not yet available.

EN

Obstacles and scientific and technical needs related to the measure taken

GIS mapping capacity and data for maps limit development.

EN

Relevant websites, web links and files

Myanmar_kba_map.pdf
Myanmar protected areas map (English).JPG
Myanmar intact forest 2018.jpg
Myanmar Ecosystem Map from FAO.jpg
Myanmar FRA2015.jpg (forest areas)

2.4.1 Implement necessary steps to become an EITI compliant country

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Myanmar was granted EITI Candidate status in July 2014 and issued its first EITI report on revenue paid by companies and received by government, based on 2013/2014 FY data, in December 2015. Its current status in EITI is 'Yet to be Assessed' under the 2016 standard, since the second report was delayed, following the change of government. Myanmar is now committed to submitting reports in March 2018 for the 2014/2015 and 2015/2016 FYs. These will be assessed against the 2016 Standard after July 2018, then Myanmar will be validated against the Standard. There is an EITI Multi-stakeholder Group in the Mining Department.	EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

While not yet EITI certified, there have been significant advances.	EN

3.1.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

A new 'National Land Use Policy" was agreed and published in 2016. This policy describes a bottom-up approach to land decisions including representations by ethnic groups and a dispute resolution mechanism. This policy is the first step towards a land law, which is under development, to protect land rights.	EN

National Target(s)

3.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The completion of an official policy has enabled the current discussions towards development of a land law. That land law is in the process of being prepared.	EN

3.1.2 Develop implementing rules and regulations that recognize customary tenure of land, freshwater, and marine resources, including communal tenure and rotational and shifting taungya

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Customary tenure measures are being incorporated into the new land law. The Conservation of Biodiversity and Protected Areas Law, enacted on 21st May 2018 and repealed 1994 the Protection of Wildlife and Protected Areas Law, and consists of a new protected area category referred to as 'community conserved protected areas'. Community conserved protected area is mainly intended to support legal protection on areas protected, conserved, or managed by a local community or indigenous people for resource needs or traditional or spiritual beliefs.	EN

National Target(s)

3.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The law has only recently been enacted and there are no data from implementation to assess progress.	EN

3.1.3 Mainstream conservation into national and district level land use planning, improve inter-ministerial coordination, and provide technical support to districts

National Target(s)

3.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Training provided to districts and a national coordination committee established EN

3.2.1 Commission a comprehensive review of laws, rules and MOECAF other relevant incentives affecting biodiversity in Myanmar

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

While government has not yet done such a review, the previously noted MCRB document (see Measure 2.3.1) on development, biodiversity and human rights provides an excellent assessment of the laws pertaining to biodiversity in Myanmar. EN

National Target(s)

3.2 By 2020, positive incentives are established for the sustainable use of nature

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There is no information on effectiveness of this measure, in part because the document has just been completed. EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

3.2.2 Amend the Forest Law and Community Forestry instructions to enable sustainable, market-led community forestry and enable joint forest management

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Forest Law was rewritten in 2018 to enable community forests, in part. There have been considerable advances for community forestry and these are highlighted under Target 5.	EN

National Target(s)

3.2 By 2020, positive incentives are established for the sustainable use of nature

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There is no effect until the law is rewritten.	EN

4.1.1 Conduct strategic environmental assessments (SEA), in line with international best practices, of the mining and hydro-power sectors.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

An SEA was completed in 2018 for the hydropower sector in Myanmar by the Ministry of Natural Resources and Environmental Conservation, Ministry of Electricity and Energy and International Finance Corporation (IFC). The SEA was an inclusive consultative process resulting in a report that provides information on the best locations in the country to develop future hydropower, following the study of 8 river basins. The SEA includes a clear indication of the preferable river stretches or sub-watersheds for medium/large-scale hydropower, as well as of those to retain in their existing state, enabling new projects to be sited to avoid significant adverse environmental and/or social impacts. An objective under the assessment was to enable protection of representative biodiversity or ecosystems within each basin in line with Myanmar’s goal of permanently preserving representative biodiversity nationwide and its commitment to the Convention on Biological Diversity, which was established to conserve biological diversity and sustain the use of these resources. A key aspect to the report, and a key measure determining possible dam locations, is the potential effects of hydro developments on aquatic and terrestrial biodiversity. The SEA was clearly needed, with the current consideration of at least 50 hydropower plants with a combined capacity exceeding 40GW (Kattelus et al. 2015).	EN

National Target(s)

4.1 By 2020, SEA conducted and guidelines prepared for mining and energy sectors.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The SEA will play a role in the selection of future hydro developments. Uncertainty remains over the impact that the document will have over developments until they occur. For example, there is currently considerable local and national concern over proposed hydro dam developments on the upper Ayeyawady River, as indicated by local protests and concern about impacts on the endangered Ayeyawady Dolphin (See Forbes Magazine article attached).	EN

Relevant websites, links, and files

http://documents.worldbank.org/curated/en/316221489041628758/pdf/113257-WP-SEA-Stakeholder-Engagement-Plan-2017-PUBLIC.pdf
https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/hydro+advisory/resources/sea+of+the+hydropower+sector+in+myanmar+resources+page
SEA hydro Myanmar Report_May+21_For+Stakeholder+Review_English.pdf
https://www.forbes.com/sites/jeffopperman/2018/01/25/following-dam-cancellation-myanmar-can-lead-on-sustainable-energy/#21b952b42fbe
IFC - Final draft Myanmar hydropower SEA

Obstacles and scientific and technical needs related to the measure taken

None identified.	EN

4.1.2 Develop guidelines for the mining and hydropower sectors based on SEA recommendations

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Ministry of Natural Resources and Environmental Conservation, Ministry of Electricity and Energy and IFC have finalized the draft Guidelines for the Preparation of an Environmental Impact Assessment for Hydropower Projects in Myanmar. These guidelines will help in formulating Biodiversity Management Plans and to identify all potential risks for biodiversity and mitigation measure. While an SEA for the mining sector has not been started, a new Mining Law (2015) and Mining Rules (2018) were revised to consider impacts on environment and contribute to a remediation fund. The new rules give more authority and	EN

responsibility to the respective levels of government to monitor the operations of mining companies, such as whether they are damaging the environment or if they have failed to conduct corporate social responsibility activities as promised. The MCRB reviewed the current laws for the mining sector in 2018 (link attached).

National Target(s)

4.1 By 2020, SEA conducted and guidelines prepared for mining and energy sectors.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The guidelines and hydropower SEA are very recent and so effects for biodiversity are unknown. Guidelines for mining are not complete. EN

Relevant websites, links, and files

http://www.myanmar-responsiblebusiness.org/pdf/SWIA/Mining/Appendix-Main-Myanmar-E-and-S-Laws-for-Myanmar-Mining-Sector.pdf

Obstacles and scientific and technical needs related to the measure taken

None identified. EN

4.1.3 Assess the national energy master plan for opportunities to minimize environmental impacts and revise it accordingly

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

A new National Energy Policy is in the process of being formulated. The main objective of this policy is to contribute to the national economic policy, while minimizing social and environmental impacts. EN

National Target(s)

4.1 By 2020, SEA conducted and guidelines prepared for mining and energy sectors.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The policy has not been finalised. EN

4.2.1 Legislate that biodiversity action plans be prepared for any new large scale resource extraction or power generation project

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Following the SEA for the hydro power sector, any new hydro development is now required to undergo a full EIA prior to development. There are also new regulations in the mining sector requiring that EIAs be completed. EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

No EIAs have yet been done as required. EN

Obstacles and scientific and technical needs related to the measure taken

The mining sector has been slow to improve their actions despite new regulations. EN

4.2.2 Develop the authority and capacity of taskforces established by the ECL to advise on the sustainability of developments and development plans, particularly through consideration of impacts on biodiversity.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

Unknown. EN

4.2.3 Establish an energy production technology transfer programme with a focus on enhancing efficiency and increasing the proportion of renewable energy

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Myanmar Petrochemical Enterprise under Ministry of Electricity and Energy has been developing and implementing plans to promote using Liquefied Petroleum Gas (LPG) as cooking fuel. As LPG is clean fuel, it can help to reduce deforestation, environmental degradation and respiratory tract disease and by achieving more energy efficiency. In addition, Flora and Fauna International has a woodstove replacement program to provide communities with high efficiency woodstoves, reducing wood required.	EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The programme has not yet been implemented.	EN

4.2.4 Establish government green procurement programme and targets.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

With the support of WWF-Myanmar, the drafting of Green Economy Policy has been finalized.	EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Policy has not yet been implemented.	EN

5.1.1 By 2020, at least 10% of dry mixed deciduous forest (DMDF) and mangrove forest has been put under some form of protection, including sustainable use and management

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There are no consistent new data on mangrove forest area or on DMDF, however, the data show a continuing decline in area of mangrove forest at a rate of about 22 km2 per year up to 2015 (data from: Hamilton and Casey 2016), including in the Myeik area (FFI, 2017), and in the Wunbaik area (Aye Aye Saw and Kanzaki 2015). The Global Forest dataset, although providing a different baseline, shows a decline of 13 km2/year over the period 2015-2018. The Wunbaik Mangrove Forest Reserve was created in the 1930s but has lost about 40% of its area to development by 2011 (Saw and Kanzaki 2015).

Table: Changes of the mangrove cover in Wunbaik Reserve area from 1990 to 2013 from Landsat TM mapping (Aye, 2013).

Class	Area (ha) 1990	Area (ha) 2013	Change (ha)
Dense Mangrove	16671.71	11893.19	- 4778.52
Sparse mangrove	6695.09	9158.17	+ 2463.08
Paddy field	1507.35	2921.49	+ 1414.14
Shrimp pond		1061.88	+ 1061.88
Road		326.32	+ 326.32
Water body	12043.40	11556.49	- 486.91

Further, land cover change data at the national level for 2005 to 2015, recently developed by the Forest Department GIS Department, showed that 136,500 ha (27%) of mangrove forests changed to ‘Other Land Use’ (mainly cropland), 90% of which occurred in the Ayeyawady and Rakhine regions (Kissinger 2017). A small area of mangrove forest was protected when the Gulf of Mottama Ramsar site was protected in 2017. DMDF area under sustainable management has improved but specific data are lacking. A large effort towards improving sustainable forest management through community forests (CF) has been undertaken in Myanmar since about 2013. This effort has involved government (Forest Department), FAO, and several NGOs including BANCA and Flora and Fauna International (FFI). FFI is working in many areas for community forestry, with about 60 village CFs by forming Community Forest User Groups (CFUGs) that are either certified or working on certification, with FFI assistance for certification from the Forest Department. Among these, 21 CFs are in the Taninthayi region and 16 are in the Kachin area, and most CFs are in mangroves and central lowland DMDF forests. More information on the efforts to improve community forest management is reported under National Targets 7.2 and 15.1. A new forest certification project has been started with PEFC, but no information on advances is available yet.

EN

National Target(s)

5.1 By 2020, at least 10% of 'dry mixed deciduous forest' (DMDF) and mangrove forest has been put under some form of protection, including sustainable use and management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The available data show a continuing decline in area of mangrove forest at a rate of about 13 km2 per year up to 2018, including in the Myeik area (FFI, 2017), and 22 km2/year in the Wunbaik area (Aye Aye Saw and Kanzaki 2015). Further, land cover change data at the national level for 2005 to 2015, recently developed by the Forest Department GIS Department, showed that 136,500 ha (27%) of mangrove forests changed to 'Other Land Use' (mainly cropland), 90% of which occurred in the Ayeyawaddy and Rakhine regions (Kissinger 2017). A small area of mangrove forest was protected when the Gulf of Mottama Ramsar site was protected in 2017. DMDF area under sustainable management has improved but specific data are lacking. A large effort towards improving sustainable forest management through community forests (CF) has been undertaken in Myanmar since about 2013. This effort has involved government (Forestry Department), FAO, and several NGOs including BANCA and Flora and Fauna International (FFI). FFI is working in many areas for community forestry, with about 60 village CFs by forming Community Forest User Groups (CFUGs) that are either certified or working on certification, with FFI assistance for certification from the Forest Department. Among these, 21 CFs are in the Taninthayi region and 16 are in the Kachin area, and many CFs are in mangroves and central lowland DMDF forests. More information on the efforts to improve community forest management is reported under National Target 15.1.	EN

Relevant websites, links, and files

Wunbaik mangrove reserve change to 2015.pdf
Mangrove Threat Assessment Report(Final).docx
Clark University mangrove mapping SE Asia
https://pefc.org/projects/forest/national-system-of-myanmar
Myanmar mangrove area 2000-14.xlsx

Obstacles and scientific and technical needs related to the measure taken

Achieving this target is constrained by lack of capacity to regularly monitor (especially in real time) and map these two forest types, personnel to enforce regulations in protected areas, and capacity to train community forest users on sustainable forest management within a short timeframe. Nevertheless, considerable advances have been made towards achieving the community forests aspect of the target by government and NGOs, including certification of some	EN

areas.

Relevant websites, web links and files

KIssenger 2017
Wunbaik mangrove reserve change to 2015.pdf
Myanmar mangrove area 2000-14.xlsx
Coastal habitat types - SE Asia/ Myanmar

5.1.2 Draft and begin to implement a national mangrove action plan, including community forest establishment and LMMAs in mangrove areas.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The National Strategy and Action Plan for Mangrove Forests has been completed and is being implemented: a National Coordination Committee has been organized and held meetings, and some capacity building programs have been conducted in local areas. FFI, working with the Forest Department has established LMMAs as well as community forests in the Taninthayi and Kachin areas. EN

National Target(s)

5.1 By 2020, at least 10% of 'dry mixed deciduous forest' (DMDF) and mangrove forest has been put under some form of protection, including sustainable use and management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Only the first steps under the plan have been implemented. LMMAs have been established in Myeik, but not yet in mangrove areas. EN

Relevant websites, links, and files

Myanmar mangrove action plan 2017 (Final).pdf
TCP Report 55, EU Project Final Narrative Report 2014-2017 (EuropeAid132763CACTMulti).pdf (Taninthayi CFs)
TCP Report 60, Mangrove Inventory & Training Wodehouse (Jan 2018).pdf

Obstacles and scientific and technical needs related to the measure taken

unknown EN

5.2.1 Assess the status of forest cover in the PFE, unclassified forest areas for potential inclusion in PFE, and areas of PFE overlapping with agricultural concessions

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

This target is incomplete as yet, but Myanmar is working on forest inventory with FAO and plans to have completed the measure (action) by 2019 for the Global Forest Resources Assessment.	EN

National Target(s)

5.2 By 2018, the PFE will have been re-assessed

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Will be completed by 2019.	EN

Obstacles and scientific and technical needs related to the measure taken

Obstacles are capacity limitations, time, and issues surrounding obtainig data from certain ethnic areas.	EN

5.3.1 Establish a national wetlands classification and update the wetlands inventory.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The revised classification and inventory are completed but not yet published, but the report on possible Ramsar sites is in draft form (attached). That report considers a provisional working list of potentially internationally important wetlands, and identifies 98 wetland areas. of which 54 are inland natural wetland localities, 33 are marine/coastal natural wetland localities, and 11 are human-made wetlands. The report provides detailed information on each of the 98 wetlands identified.	EN

National Target(s)

5.3 By 2020, all wetland areas surveyed and prioritized for conservation value.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Not yet published, except for the Ramsar provisional list. EN

Relevant websites, links, and files

Ramsar Site Provisional List.pdf (wetland inventory)

Obstacles and scientific and technical needs related to the measure taken

None identified. EN

5.3.2 Nominate three additional Ramsar sites to Ramsar Secretariat

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Myanmar had four Ramsar sites approved between 2015 and 2018, and so exceeded target and adding an additional 1403.8 km2 of at least partially protected area, plus Inlay Lake has an additional area of 1565.41 km2, but is heavily used. All have management plans completed.

- Indawgyi Ramsar Site (2016)
- Gulf of Mottama (Mon State) Ramsar Site (2017)
- Meinmahla Kyun Ramsar Site (2017)
- Inlay Lake Ramsar Site (2018)

EN

National Target(s)

5.3 By 2020, all wetland areas surveyed and prioritized for conservation value.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The acceptance of these areas affords a level of protection not present before the formal recognition. Each of these areas is important for various wildlife species, including endangered species of shorebirds and waterfowl. In addition, the Gulf of Mottama area has mangrove forest within its boundaries. There remains uncertainty about the level of protection achieved owing to a lack of enforcement capacity. However, working with local communities to improve management may help solve the issue. EN

Relevant websites, links, and files

Gulf of Mottama Ramsar site.docx (map)
Indawgyi Ramsar Site (2016) :

Gulf of Mottama (Mon State) Ramsar Site (2017)
Meinmahla Kyun Ramsar Site (2017)
Inlay Lake Ramsar Site (2018)
Information in Gulf of Mottama site
IUCN Gulf Mottama mngt plan.docx (Management plan Gulf of Mottama, IUCN)

Obstacles and scientific and technical needs related to the measure taken

None. EN

5.3.3 Establish community-based participatory monitoring and management programme in Ramsar sites and potential Ramsar wetlands

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Community participatory monitoring is being practiced in three Ramsar Sites in Myanmar: Gulf of Mottama, Meinmahla Kyun, and Indawgyi Lake. All three sites have management plans. For example at the Gulf of Mottama, BANCA has helped to establish Local Conservation Groups (LCGs) to support shorebird conservation, including monitoring of shorebirds as well as illegal fishing. The groups are voluntary and have been established in known bird hunting sites. EN

National Target(s)

5.3 By 2020, all wetland areas surveyed and prioritized for conservation value.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

These programs are only a year old and so no data are yet available. EN

Relevant websites, links, and files

IUCN Gulf Mottama mngt plan.docx (Gulf of Mottama Plan)

Other relevant information

The following is from the Gulf of Mottama (GoM) Management plan: Inclusiveness, Gender, and Social Equity:
To promote a true sense of ownership of the management process, and to ensure benefits to the most vulnerable population, the management of the GoM should be inclusive, with equitable representation and active participation of stakeholder groups throughout the management process. This encompasses gender EN

inclusiveness; women must be meaningfully included in the management process to ensure that their needs, rights, and contributions are fully valued. The benefits and costs of managing the GoM should not be concentrated only in certain stakeholder groups, but should be distributed in a more equitable manner. Capacity building can prepare stakeholders for active participation in and leadership of management processes. Monitoring and evaluation should ensure that positive and negative impacts from management are not disproportionately borne by any group of stakeholders.

Obstacles and scientific and technical needs related to the measure taken

None. EN

5.4.1 Establish national-level mechanism for combating illegal logging

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Protection and Inspection Division of the Forest Department has developed and implemented action plan for combating illegal logging. This plan includes a component whereby community monitoring and reporting is being emphasized in combating timber trafficking. In 2014, the Forest Police were added to the Myanmar Police Force, with a staff of approximately 300. Its role is to support the Forest Department and uphold its policies to protect Myanmar’s forests and to investigate illegal logging and also to protect wildlife from illicit trafficking. Over the past 3 years this force has improved its effectiveness, nevertheless, capacity remains too low to control the problem entirely.

The Forest Department uses the following approaches to combat illegal logging:
1.) Investigations, searching, illegal logs seizing in the form of surprise checks by Forest Department special squads at places, where illegal timber and forest products are usually collected and stored, every month in regions/states;
2.) Seizure through Community Monitoring and Reporting System (CMRS);
3.) Seizure by cooperating with forest police in 19 districts in 8 regions/states;
4.) Seizure by cooperating with forest police and military units and other related organizations and agencies;
5.) Searching, detection and seizure of illegal logs in main rivers like Ayeyawaddy River and Chindwin River in the form of military crackdown to control riverine routes;
6.) Surprise raids upon receiving information or regular investigations in townships/districts;
7.) Field inspection and seizure upon receiving information by the Director General's Office of Forest Department. EN

Myanmar seizes an average of 40,000 tonnes of illegal wood a year over the past 10 years, with an increasing amount each year since 2014:

Year	Illegal wood seized (tons)
2013-14	45466 (baseline)
2014-15	51726 (+13.8% vs. 2014)
2015-16	46154 (+2%)
2016-17	50027 (+9%)
2017-18	48682 (+7%) (8000 arrests)
2018 (Jan-May)	21106 (5 mo., 6244 total cases)

Value of seized wood has increased from $US122,000 to >US$7 million in 2017.

Recognizing the important role of people living close to wildlife in combating poaching and illegal wildlife trade, Myanmar is initiating a community monitoring and reporting system (CMRS). CMRS is potentially a very effective tool, and can result in significantly reducing wild elephant poaching in hotspots. Mr. Kyaw Myint Tun and Mr Tun Lay, elephant conservationist and the head of administration in Tin Chaung Village Tract from Ayeyawady Region, an elephant poaching hotspot in Myanmar, was selected for the State Counsellor's gratitude of honour in July, 2018 for his remarkable efforts and enthusiasm to protect and conserve the wild elephants from being killed and to expose and apprehend the poachers.

National Target(s)

5.4 By 2020, there has been an increased effort to combat and reduce illegal logging.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There has been a annual increase in the amount of illegal wood seized (vs. 2014), although we cannot know if this also reflects an increase in illegal logging. Illegal logging continues owing in large part to a willing market north and west of Myanmar and to insufficient capacity for enforcement. EN

Obstacles and scientific and technical needs related to the measure taken

Lack of capacity, especially funding, and technical expertise are major issues that need to be resolved for improved enforcement. EN

5.4.2 Increase budget allocation for combating illegal logging

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Myanmar was unable to meet this measure by 2018. EN

National Target(s)

5.4 By 2020, there has been an increased effort to combat and reduce illegal logging.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been ineffective

tools or methodology used for the assessment of effectiveness above

The budget allocation was not achieved. EN

Obstacles and scientific and technical needs related to the measure taken

No funds available. EN

5.5.1 Develop a FLEGT process

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Part of the national planning to reduce illegal timber harvesting and move to a more sustainable harvest has been planning with the European Union (EU) to develop a Forest Law Enforcement, Governance and Trade (FLEGT) process for Myanmar. The FLEGT-VPA (Volunteer Partnership Agreement) facility helps members to combat illegal logging and strengthen forest governance, while encouraging sustainable economic development in countries that produce or process timber and export it to the EU. Myanmar is currently in phase 1 and an inception workshop took place in 2015. As a part of this process, the Myanmar Forest Certification Committee (MFCC) commissioned a gap analysis report in 2016, with technical support from the FAO-EU-FLEGT Programme. This was presented to a consultative workshop with 150 national and international stakeholders in Yangon in 2017. The FLEGT process has been agreed, with annual workplans that started in 2016. The country is now negotiating a roadmap internally and with EU.

Under FLEGT the objectives are:

1. To eradicate the illegal timber and trade to EU.
2. To get the good forest governance and manage the forest sustainably.

EN

3. To export Myanmar legal timber to EU.

National Target(s)

5.5 By 2020, negotiation phase to sign Forest Law Enforcement Governance and Trade (FLEGT) and Voluntary Partnership Agreement (VPA) has been conducted

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Development of the FLEGT process has been completed and the negotiations and planning have moved to the next phase. EN

Relevant websites, links, and files

FLEGT Myanmar - Overview of Forest Governance, Markets and Trade.pdf

Obstacles and scientific and technical needs related to the measure taken

None EN

5.5.2 Form a FLEGT Task Force with relevant organizations, private sector, and civil society organisations

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

A multi-stakeholder taskforce was formed including government, civil society organisations and private industry with 24 members in 2018. There are also regional multi-stakeholder groups. The role of these groups is to formulate and implement workplans. Early in the process Interim taskforce teams presented FLEGT VPA activities to both members of Regional Government and Parliament including relevant stakeholders from civil society groups and the Private Sector in States and Regions; Sagaing, Thanintharyi, Kayin, Mon, Mandalay, Bago, Magwe, Ayeyarwaddy, Chin, Rakhine, Kachin, Kayah, Shan, and Yangon during December 2016 to July 2017. A multi-stakeholder group (MSG) was formed including government, civil society organisations and private industry with 24 members in 2018. There are also now regional multi-stakeholder groups, whose role it is to formulate and implement workplans. EN

National Target(s)

5.5 By 2020, negotiation phase to sign Forest Law Enforcement Governance and Trade (FLEGT) and Voluntary Partnership Agreement (VPA) has been conducted

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The national taskforce and regional planning groups are in place with annual workplans. EN

Obstacles and scientific and technical needs related to the measure taken

None EN

5.5.3 Integrate the tasks of FLEGT in the annual work plans of concerned organizations

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

All participating organisations have begun taking account of the FLEGT in workplans. To that end, there has been extensive training: 200 people within Forest Department and more than 2000 across country among civil society and in the private sector. EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The organisational structure of FLEGT in Myanmar has succeeded in involving a large number of regional actors and in training a large number of people. EN

Obstacles and scientific and technical needs related to the measure taken

None EN

5.5.4 Amend laws, procedures and rules to support the implementation of FLEGT

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Forest Law has been rewritten, in part to enable FLEGT, by including private sector planted forests and CFs.
The national taskforce is still working on a definition of legal wood and they are in EN

the process of also modifying the ASEAN standards for chain of custody for specific use in Myanmar.

National Target(s)

5.5 By 2020, negotiation phase to sign Forest Law Enforcement Governance and Trade (FLEGT) and Voluntary Partnership Agreement (VPA) has been conducted

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The law has yet to be completed. EN

Obstacles and scientific and technical needs related to the measure taken

None - will be done by 2020 EN

6.1.1 Amend state/regional legislation to create legal support for locally-managed freshwater fisheries and establish legal status for Community Fishery User Groups (CFiUGS).

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

This initiative is just beginning. In one case, however, a partnership called the Rakhine Fisheries Partnership (RFP) was formed in 2012, comprising the State Government, Department of Fisheries, the private sector, universities, Civil Society Organizations (CSOs) and fishermen to support the development of fisheries legislation and governance, based on shared interests and the recognition of history, structure, and political relationships on which traditional coastal fisheries are based. This initiative resulted in the development and passing of the Rakhine State Freshwater Fisheries Law in November 2014, and has the potential to establish a landmark for rights-based co-management approaches to coastal fishing in Myanmar. EN

National Target(s)

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

One state has the appropriate law, so a very limited advance.	EN

Obstacles and scientific and technical needs related to the measure taken

Lack of capacity, funds, out-dated laws, complex system.	EN

6.1.2 Register 400 additional Community Fishery User Groups (CFiUGs) and explore further capacity development, including through partnerships

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

EU has funded the Myanmar Sustainable Aquaculture Programme (MYSAP) to improve sustainable aquaculture with Myanmar Fisheries Department. Myanmar has initiated work on a National Aquaculture Development Plan, which includes provisions for community management. Wildlife Conservation Society helped to establish a Co-management Group of Kyeintali Onshore Fishery, comprised of 1,500 fishermen/women from 10 villages and traders. Training was provided on a Co-management Plan for those fishermen/ women in cooperation with a partner organization, the Rakhine Coastal Region Conservation Association. At Myeik, long-term management of marine areas has been granted to three local fishing communities (LMMAs). The three communities received exclusive fishing rights, while taking responsibility for protecting local marine habitats and biodiversity and managing harvest levels. This work including management planning for each groups was accomplished with the assistance of Flora and Fauna International. At the Myeik area, the local management groups for the inshore fishery are almost entirely women. Together with the Smithsonian Institute, Flora and Fauna International and the LMMAs have begun monitoring offshore fish catch and registering boats to start a management program. In the Gulf of Mottama, Biodiversity and Nature Conservation Association provided Indigenous Community Conservation Areas training at three ethnic areas for conservation of migratory birds and fisheries that Biodiversity and Nature Conservation Association is co-managing, including for the action plan for spoon-billed sandpipers. These groups have about 25-30% women involved in 8 Local Conservation Groups and there were nearly equal of women in participants in awareness raising of environmental conservation talks and activities. Note: Fisheries officials believe that this target was erroneously set far too high and that a number like 5 or 10 CFiUGs would have been more reasonable.	EN

National Target(s)

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.
6.2 By 2020, total commercial marine catch reduced to more sustainable levels.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There are 4 Community Fishery User Groups (CFiUGs), but the successful implementation of the Myeik local management areas indicates that the community approach is having positive effects.	EN

Relevant websites, links, and files

TCP Report 09, Implementation of LMMAs in the Myeik Archipelago (Jan 2015).pdf (FFI and Forestry Dept.)
TCP Report 43, Draft LMMA Management Plans (Feb 2017).pdf (FFI, Dept. Fish.)

Obstacles and scientific and technical needs related to the measure taken

Funding, time, and capacity are key obstacles. Travel among the many islands also limits what can be accomplished in a given period of time.	EN

6.1.3 Expand area under community fisher user groups (CFiUG) management to cover 10,000 hectares through establishment of locally-managed fishery management zones.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Wildlife Conservation Society and Department of Fisheries have designated an area of 725.2 km2 as a co-management area for inshore fishery in Kyeintali of Gwa Township, Thandwe District, of Rakhine State. Along the Ayeyawaddy River, the Ayeyawaddy Dolphin Protected Zone was extended by 119 km (Htee Chaik – Katha – Shwegu) in Kachin State and the Sagaing Region. The 3 LMMAs in the Myeik Archipelago cover about 10,000 ha in total. In July 2018, talks on pond aquaculture and ecology on Inle Lake will be held jointly by Taunggi University, Department of Zoology, GIZ MYASP (Inland Program), and Department of Fisheries, Shan State. Moreover, the faculty members from Department of Zoology are reviewing biodiversity research every year as a regional development research activity. This can benefit local communities by contributing to sustainable conservation and management.	EN

National Target(s)

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.
6.2 By 2020, total commercial marine catch reduced to more sustainable levels.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

This target has been exceeded with >10,000 ha under co-management by local communities, NGOs and government.	EN

Relevant websites, links, and files

TCP Report 42, METT for Langann LMMA (Nov 2016).pdf (FFI)
TCP Report 41, METT for Lin Long-Parawa LMMA (Nov 2016).pdf (FFI)
TCP Report 40, METT for Don Pale LMMA (Nov 2016).pdf (FFI)

Obstacles and scientific and technical needs related to the measure taken

The main obstacles are the isolation of fishing villages, the extensive coastline with thousands of islands, and the long distances needed to travel to organize LMMAs and community groups, especially relative to the capacity available. What has been accomplished was done with targeted donated funding.	EN

6.1.4 Develop guidelines for sustainable management of CFiUG and provide support to communities in following the guidelines.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

No progress was reported for marine fisheries, but for inland fishery groups, guidelines were produced for leased area fisheries. These guidelines require lease-holders to improve fish habitats and to manage the local resource sustainably..	EN

National Target(s)

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Guideline for lease-holder fisheries were produced. EN

Other relevant website address or attached documents

Kywe et al. 2015. Inland fisheries

Obstacles and scientific and technical needs related to the measure taken

unknown. EN

6.1.5 Implement projects demonstrating benefits of integrated mangrove aquaculture

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Forest Department has launched a program, in 2018, entitled "Integrated Planning and Practices for Mangrove Management associated with Agriculture and Aquaculture in Myanmar", implemented in partnership with Queensland University in Australia and APFNet. Under this plan, 200 ha of mangrove will be recovered, in part, to enhance shrimp aquaculture. EN

National Target(s)

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There are no data to assess projects as yet. EN

Relevant websites, links, and files

APFnet site describing mangrove project

Obstacles and scientific and technical needs related to the measure taken

Unknown. EN

6.2.1 Develop an ecosystem-based fishery management plan for the Myeik Archipelago and begin to establish Local Marine management Areas (LMMAs) at key sites

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Local fishing communities in the Myeik Archipelago have been granted long-term management of marine areas (LMMAs). Through the work of FFI together with Department of Fisheries, three communities received exclusive fishing rights, while taking responsibility for protecting local marine habitats and biodiversity. The designation of these three LMMAs on Thayawthadangyi Island and the Langan Island group is meant to protect diverse coral reefs and important fish and crab nursery grounds, while supporting local livelihoods.

Department of Fisheries, Forest Department, and Marine Science Association as well as Mawlamyine University (Department of Marine Science) are working together in establishing a new LMMA in Pulaw Township, Taninthayi Region.

As an important step to support the ecosystem conservation of Myanmar's Southern Coastal Zone, FAO has initiated with the Dept. of Fisheries the formulation process of a GEF funded project: "My-Coast: Ecosystem Based Conservation of Myanmar's Southern Coastal Zone" in 2018. Focusing primarily on the Taninthayi Region and the Myeik Archipelago, the project will support within fisheries and forestry communities to improve local management of the precious coastal and marine in the area. The MyCoast Project is intended to bring improved conservation of hundreds of thousands ha of mangroves, seagrass, and other coastal zone natural resources.

EN

National Target(s)

6.2 By 2020, total commercial marine catch reduced to more sustainable levels.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

These LMMAa were only recently established.

EN

Other relevant information

See also 6.1.3 above for documents.

EN

Other relevant website address or attached documents

TCP Report 22a, Assessment of the Crab Fishery in Thayawthadangyi Island (July 2015).pdf (LMMA crabs)
TCP Report 12, Shark and Ray Fisheries, Status and Socio-Economic Importance (May 2015).pdf

Obstacles and scientific and technical needs related to the measure taken

Time funding and effort to organize LMMAs; Fishery Department unaware of commitments under NBSAP.	EN

6.2.2 Identify and establish species- and site-specific closed seasons through coordination of government and private sector

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Mawlamyine University (Marine Science) is conducting research on habitats of fingerlings, their migration and distribution at estuaries of Sittaung River and Than Lwin River to identify and establish species- and site- specific closed seasons. Other work through the Department of Zoology of Monywa University is studying fish species in wetlands and along Chindwin River in Monywa Township, Sagaing Region in Upper Myanmar. A key objective is to understand populations sufficiently well to enable site-specific closed seasons to be established in these areas. Other objectives are more local awareness-raising of concerns related to fisheries in this area, in cooperation with private fishery businesses. Elsewhere, the Wildlife Conservation Society (WCS) has developed no-fishing zones, closed season fishing zones, sea turtle protected areas, and gear-restricted areas in the co-managed area with the Kyeintali Onshore Fishery Co-management Group.	EN

National Target(s)

6.2 By 2020, total commercial marine catch reduced to more sustainable levels.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The work is too recent to enable assessment of success.	EN

Obstacles and scientific and technical needs related to the measure taken

There is a lack of data sufficient to enable setting species specific or area closed seasons. Closed seasons exist for the spawning seasons only.	EN

7.1.1 Develop sustainable rice cultivation guidelines and implement across 10% of rice cultivation area, including SRI, IPM, and improved soil and water management.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Myanmar agriculture development strategy (ADS) and investment plan (2018 to 2023), includes seven principles to improve environmental and social sustainability, and promote sustainable good agriculture practices that enhance farmer incomes. The plan is to improve food production through adoption of new practices and technologies that ensure sustainable use of natural resources, primarily land, soil, water and forestry. Methodology included are integrated water resources management (IWRM), system of rice intensification (SRI), green water management, nitrogen use efficiency, conservation agriculture, agroforestry and organic agriculture. The Rice Division (Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation), conducted training in 15 Sates and Regions, including demonstrations, and model farms to increase rice yield per acre Techniques included using good seeds, organic and inorganic fertilizer use, reducing harvesting waste related training. This resulted in the training of several thousand farmers. In 2016-2017, rice sowing techniques trials such as SRI, raising in nursery before transplanting, direct seeding by machine and broadcasting methods were conducted at 164 locations across Myanmar. In addition, in 2016-2017, 300 summer rice trials were conducted at 14 Regions and States. Rice cultivation using SRI was carried out in farm fields totalling 500 ac. in 14 States at 104 villages while training 196 farmers.	EN

National Target(s)

7.1 By 2020, SRI and other forms of environmentally friendly rice production have been implemented in 10% of rice paddy area

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

No data available on success of these many programs, but a large number of farmers have been trained, including through the use of demonstration areas in sustainable rice production..	EN

Obstacles and scientific and technical needs related to the measure taken

The key obstacles for this target is the very large number of rural farmers who must be trained and the lack of mechanisation.	EN

7.1.2 Hold agricultural extension events to train farmers in sustainable rice cultivation techniques and certification

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

As noted under 7.1.1, a large number of farmers across Myanmar have been trained in sustainable rce production. The Department of Agriculture conducts regular training in numerous areas to improve general farming techniques, reduce the use of pesticides, and climate-based cropping. Between 2010 and 2017, 631 men and 707 women attended 38 workshops. Other btraining nhas included education and training on vegetable pest management, such as by releasing parasitic wasps to greengram, chili and tomato field, education, sharing Pamphlets, insect traps practical utilization, distinguishing beneficial insects and pests, were conducted at Let Pan Nan Ka Le village, Thongwa township, Yangon region. Plant clinics are operated under the "Plantwise Project" (2014-2020), whereby plant protection staff from the states and region are trained by plant health advisors. A total of 23 plant clinics were opened in Bago (3), Yangon (2), Ayeyarwady (3), Naypyitaw (5), Sagaing (2), Mandalay (7), Mon (1), respectively, and solved farmers problems regarding with pest and diseases	EN

National Target(s)

7.1 By 2020, SRI and other forms of environmentally friendly rice production have been implemented in 10% of rice paddy area

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There are no data to quantify success. Rice production in Myanmar has generally risen since 2014, except for flooding in 2015, but it is uncertain if this is weather, area, or training related.	EN

Other relevant website address or attached documents

Sustainable rice case study

Obstacles and scientific and technical needs related to the measure taken

Obstacles include the large number of small holding farmers that require training, and the lack of sufficient capacity in M. Ag. to conduct the training.	EN

7.2.1 Establish extension programme for sustainable aquaculture management

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Department of Fisheries with JICA has established an extension program for small-scale aquaculture which began in 2009 and is still active. The JICA project trains farmers and enables them to train others in the same regions. Training is also key initiative under the MYSAP program funded by the EU and in the National Aquaculture Development Plan. Another program run through Worldfish with the DoF, called Myfish2, is improving fishery management in the Ayeyawady Delta.

The Department of Fisheries has established the Good Aquaculture Practices Extension Team in 2016, to improve techniques of fish-farmers at all of the aquaculture sites in the country and to provide other extension activities and auditing practices at certified farms. The Department is in the process of upgrading the shrimp hatchery in Rakhine state.

EN

National Target(s)

7.2 By 2020, 5% of fish and shrimp aquaculture by volume follows international best practices for sustainable management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The Dof/JICA program has been successful. The MYSAP program has just started and no assessment can yet be made.

EN

Relevant websites, links, and files

Myfish2 Program

Other relevant website address or attached documents

Description of the MYSAP programme
DoFish/JICA Aquaculture training programme

Obstacles and scientific and technical needs related to the measure taken

Funding and internal government capacity to deliver training

EN

7.2.2 Develop pilot shrimp aquaculture projects meeting international certification standards for sustainable aquaculture and food safety export standards

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Fisheries Department has established best practices at 17 shrimp farms under the MYSAP Programme, but acknowledges the need for much more work. EN

National Target(s)

7.2 By 2020, 5% of fish and shrimp aquaculture by volume follows international best practices for sustainable management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

A relative few farms have been improved. EN

Obstacles and scientific and technical needs related to the measure taken

Time, capacity and funding. EN

7.2.3 Develop alternatives to fish feed for domestic aquaculture, including soy-based feed

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No work done yet. Research is needed. EN

National Target(s)

7.2 By 2020, 5% of fish and shrimp aquaculture by volume follows international best practices for sustainable management

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No data. EN

Obstacles and scientific and technical needs related to the measure taken

No funding for a directed research programme. EN

8.1.1 Undertake a desktop study of existing pollution issues in Myanmar and compile a

priority list of ecosystems and species at risk

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No information was available for a national study, but several local studies have been completed since 2015, including a study on effects of mining water pollution on agriculture, amounts of surface water pollution, waste management, mercury pollution, and plastics in waterways (attached). WWF and consultants are conducting a current study of pollution along the Ayeyawady River under the World Bank funded Ayeyawady Integrated River Basin Management (AIRBM) Project, slated for completion in 2020. Most studies did not specifically refer to an individual species at risk, although AIRBM study takes special interest in the Ayeyawady dolphins. A report by the Myanmar Centre for Responsible Business (2014) identifies that the main sources of land-based coastal pollution include: sewage; excess nutrients from agriculture and aquaculture; chemical fertilizer residue; persistent organic pollutants (POPs) from used pesticide residue; used household materials like plastic bags; and medical waste and excreted pharmaceuticals. Sufficient understanding exists for the ECD to have enacted an Environmental Management Plan for polluting industries in 2018, which required nine major industries, including the textiles business, to adopt wastewater and solid waste management systems; this was the first such regulation in the country.	EN

National Target(s)

8.1 By 2020, understanding of the extent and severity of pollution in Myanmar and Its Impacts on biodiversity is significantly enhanced

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There is no national-level analysis of pollution burden and effects on biodiversity, but work the Ayeyardwady River and other river systems by several agencies has provided some information.	EN

Other relevant website address or attached documents

Surface water pollution
Mercury pollution from gold mining
Local mercury investigation
Ayeyarwady River and the economy WWF
The AIRBM study of the Ayeyarwady
Status of the Ayeyarwady River
MCRB oil and gas environmental issues 2014.pdf (Causes of coastal pollution)
Agriculture effects of wastewater pollution 2017..pdf

Obstacles and scientific and technical needs related to the measure taken

Lack of funding to conduct the study. EN

8.1.2 Undertake targeted field research to determine the condition of sensitive ecosystems (such as rivers and lakes) at particular risk of being impacted by pollution (e.g. near industrial sites and mining operations) and for which only limited information is currently available.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Noted in 8.1.1, studies have been completed since 2015, including a study on effects of mining water pollution on agriculture, amounts of surface water pollution, waste management, mercury pollution, and plastics in waterways. In addition, there is a current study on the relationship between fish and physical parameters of water along Chindwin River (from Ahlone to Nyaungpingine). Chemical parameters as a result of illegal gold mining are being studied and the impacts on fish species and on terrestrial systems will be further researched. The Ayeyawady is an especially important river and the WWF completed a study on the completed a study on the Ayeyawady Delta coastal geomorphology and Delta stability and also mapped the drivers of change on the River. They (WWF) initiated a water stewardship approach, launched the Ayeyawady in the Economy project and formed a multi-stakeholder water stewardship working group and wastewater working group (see documents under 8.1). A study on aquatic habitats along the Ayeyawady River by Lee et al. (2018) found extreme pressure from developments on all habitat types, including pollution, soil runoff following deforestation and agriculture, fishing pressure, and suggested the need for greater protection. A study on industrial pollution in agricultural area in the central dry zone revealed a reduction of about 40% rice yield as a result of wastewater pollution from textile industry (Tin Tin Htwe 2017). More information on water resources planning and pollution abatement is dealt with under 14.1.1. EN

National Target(s)

8.1 By 2020, understanding of the extent and severity of pollution in Myanmar and Its Impacts on biodiversity is significantly enhanced

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Few published reports or studies were available EN

Relevant websites, links, and files

Agriculture effects of wastewater pollution 2017..pdf
Ayeyawady River habitat study

Obstacles and scientific and technical needs related to the measure taken

Funding for individual focussed research studies is lacking. EN

8.2.1 Ensure draft EIA Procedure and NEQS are reviewed by independent biodiversity experts

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

EIA procedures and NEQ Guidelines for Emissions were approved and circulated in December 2015. Asian Development Bank and JICA have provided technical support EN

National Target(s)

8.2 By 2017, the EIA Procedure, NEQG (guidelines), and NEQS (standards) include adequate provisions to ensure protection of biodiversity and ecosystem services

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No information on reviews by biodiversity experts was available. EN

Other relevant website address or attached documents

NEQ guidelines for emissions (English)

Obstacles and scientific and technical needs related to the measure taken

None, work is complete. EN

8.2.2 Conduct training on the potential impacts of pollution on biodiversity to ensure that the regulators responsible for review of EIA documentation and application of NEQG or NEQS have adequate understanding of biodiversity to assess the potential impacts of development.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

There has been considerable training activities and capacity development EN

including:
Capacity Development in cooperation with Vermont Law School starting from 2014, 16 people received on the job training on EIA report reviewing; JICA organised a seminar on Environmental Impact Assessment was organized in Yangon, in 2017, for about 150 representatives from local businesses, Japanese businesses based in Myanmar, and other organizations; JICA also provided a seminar on Environmental Impact Assessment in Mandalay in 2018 for about 100 representatives from local businesses, Japanese businesses based in Myanmar, and other organizations; and JICA provided a capacity development program in Nay Pyi Taw in 2018 as a component under the “Plan on Capacity Enhancement in Basic Water Environment Management and EIA system in Myanmar”. ADB provided training for ECD staff for reviewing mining sector EMP reports, capacity development activities were implemented in 6 regional/state ECD offices (Shan, Mandalay, Sagaing, Bago, Taninthayi, Kachin); training on Environmental Management Planning in EIA for 30 staff members from ECD head office and regional/state offices in 2016. Together with WWF and MCRB, ADB helped to provide a training Course on Good Practices for Mine Waste Water & Waste Rock Management in 2018, for 45 participants from all divisions, head office and regional/state offices of Department of Mines, business owners, and third parties. WWF and MCRB provided training on Environmental and Social Planning and Management in the Mining Sector in 2017 for 30 staff members from head office of the Department and regional/state offices. On the job training and capacity development on EIA report reviewing in the mining sector was conducted for 40 staff members from head office of the Department and regional/state offices in 2017. To enable more expeditious and comprehensive feedback and approval, capacity development and on the job training as well as field trips to project areas were conducted for staff members and officers from regional/state level Environmental Conservation Department three times during 2017-18.
The Norwegian Environment Agency (NEA) helped to establish an Environmental Data Management (EDM) System to enable to understand and use environmental data of coastal areas in oil and gas sector. With the support of the Forest Department, GIS training was conducted at Environmental Conservation Department in 2017. A “Workshop on Biodiversity in Coastal Areas and Their Data Availability and GIS” was organized at ECD in 2017. ECD staff visited Pathein University in 2018 to assess the availability of data on biodiversity in coastal areas.

National Target(s)

8.2 By 2017, the EIA Procedure, NEQG (guidelines), and NEQS (standards) include adequate provisions to ensure protection of biodiversity and ecosystem services

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The many measures have considerably improved the capacity of a large number of ECD staff with respect to EIA. EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

8.3.1 Establish and enhance network of water pollution monitoring stations around Inlay Lake, Indawgyi Lake, and along the Ayeyawady River (particularly stretches frequented by the Ayeyawady dolphin)

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Generally not done, although there has been a long-term monitoring program on the Ayeyawady River. ECD launched in 2018 an Environmental Management Plan for polluting industries, which required nine major industries including the textiles business to adopt wastewater and solid waste management systems. It was the first such regulation in the country. In 2016, the Norwegian Assistance Program started to increase water monitoring as a part of the Integrated Water Resources Management Program. EN

National Target(s)

8.3 By 2020, a water pollution monitoring network involving both government and local communities is operational at three critical freshwater sites and at existing or proposed Special economic Zones

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No data from the new programme were available. EN

Relevant websites, links, and files

watersolutions_01_2016-4.pdf (Integrated Water Resources Managemen, Norway Plan)
Integrated water resources mngt Myanmar 2017.pdf (IWRM preliminary plan)

Obstacles and scientific and technical needs related to the measure taken

Not a sufficiently high priority, given the capacity available, and insufficient funding available. Work involving Norway should improve the situation. EN

8.3.2 Develop a community-based water quality monitoring programme and provide training to support the development of a community water monitoring network, including participatory monitoring in and around Special Economic Zones

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Not done yet. EN

National Target(s)

8.3 By 2020, a water pollution monitoring network involving both government and local communities is operational at three critical freshwater sites and at existing or proposed Special economic Zones

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Not done. However, ECD launched in 2018 an Environmental Management Plan for polluting industries, which required nine major industries including the textiles business to adopt wastewater and solid waste management systems. It was the first such regulation in the country. The impact of these guidelines is munknown yet. EN

Relevant websites, links, and files

http://www.eco-business.com/news/how-japanese-technology-is-cleaning-myanmars-polluted-waterways/

Obstacles and scientific and technical needs related to the measure taken

Unknown but no funding available. EN

8.3.3 Assist floating vegetable farmers in Inlay Lake to adopt ecologically-friendly practices that minimize the use of agrochemicals

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The International Finance Corporation (IFC), a member of the World Bank Group and Ministry of Agriculture, Livestock and Irrigation, Myanmar organized a one day workshop on Good Agriculture Practices (GAP) to 300 participants (including 200 tomato farmers). The seminar discussed how to improve practices and reduce the use of chemicals on floating farms on Inle Lake. The objectives

were to support GAP and protect Inle Lake for improved sustainable agricultural practices and ensure the lake continues to be a leading source of income for local residents.

In June 2017, the good agricultural practices (GAP) system demonstration ceremony was jointly implemented by United Nilar Agribusiness and Shan State Agricultural Department, and mentioned that floating tomato cultivators in Inle Lake, Shan State are pleased with the GAP system. The United Nilar Agribusiness provided GAP technology assistance and use of bio-pesticide for 50 acres of land from five villages. The department provided Kyats 0.3 million per acre to 50 acres of land as well as the bio-pesticides, and products from these 50 acres are being sold in the local market.

Save Inle Lake, the Inle farmer agricultural and development community, established a floating garden (about 2 acre) in Inlay Lake in order to promote the region's tourism sector and agriculture industry, with the use of eco-friendly floating agriculture technology.

In 2017-18 fiscal year, Horticulture and Plant Biotechnology Division (MoALI) conducted good agricultural practices (GAP) training which related with In le Lake to adopt ecologically-friendly practices that minimize the use of agrochemicals as follow:

No.	Name	Location	training period	no. of trainees
1	Good agricultural practices(GAP)? organic and pesticide usage	Center of agricultural research and training center (CARTC), Hlegu	May 2, 2017 to May 12 , 2017	States/regions government employee (50) persons
2	Proper utilization of pesticide and environment conservation, and GAP training	Heho	May 5, 2017	Government employee (5) persons and farmers (55) persons

3	GAP, pesticide and fungicide application training	Heho	Jul 27, 2017	Government employee (10) persons and farmers (90) persons
4	GAP training to Inle lake Good Friend Association	Heho	Sept 29, 2017	farmers (50) persons
5	Safe Use Pesticide	Heho	Oct 17, 2017	farmers (40) persons
6	Training to In Le Sa Kar Villager	Heho	Dec 30, 2017	farmers (100) persons

National Target(s)

8.3 By 2020, a water pollution monitoring network involving both government and local communities is operational at three critical freshwater sites and at existing or proposed Special economic Zones

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Uncertain of results, but large effort to improve floating vegetation farming. EN

Obstacles and scientific and technical needs related to the measure taken

Over-coming current practices by illustrating newer practices and techniques are better. EN

8.4.1 Establish education and outreach programme for informal and artisanal miners on mercury and other pollutants in at least three priority states/regions

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress yet. EN

National Target(s)

8.4 By 2020, informal and artisanal minors have an enhanced understanding of pollution and toxicity of mercury and methods to reduce its use

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

No funding available EN

8.5.1 Undertake a desktop study of known, internationally recognized, environmentally damaging chemicals to identify regulation gaps

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress on the review but the Pesticides Law was adopted in January 2016 (Law 14/2016) to replace the old law. The responsible agency is the Department of Agriculture, but there appears to be no specific restriction for pesticide use. Instead, users need to comply with departmental instructions/guidelines. EN

National Target(s)

8.5 By 2020, the sale and use of fuel additives, agrochemicals and veterinary drugs that are known to have significant negative impacts on biodiversity and ecosystem services are effectively controlled and, where appropriate, banned

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Not done and the new law requires guidelines and enforcement. EN

Obstacles and scientific and technical needs related to the measure taken

Targetted funding not available; priority EN

8.5.2 Regulate use of organochlorines and ban the veterinary use of diclofenac and other non-steroidal anti-inflammatory drugs known to kill vultures

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

8.5 By 2020, the sale and use of fuel additives, agrochemicals and veterinary drugs that are known to have significant negative impacts on biodiversity and ecosystem services are effectively controlled and, where appropriate, banned

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Not done. EN

Obstacles and scientific and technical needs related to the measure taken

Unknown EN

8.5.3 Ban use of tetraethyl lead as a fuel additive in Myanmar

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress reported EN

National Target(s)

8.5 By 2020, the sale and use of fuel additives, agrochemicals and veterinary drugs that are known to have significant negative impacts on biodiversity and ecosystem services are effectively controlled and, where appropriate, banned

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No data. EN

Obstacles and scientific and technical needs related to the measure taken

Unknown. EN

9.1.1 Establish an IAS unit within the FD to help coordinate the activities of government, the private sector and non-governmental organisations

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

No progress EN

National Target(s)

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No work done. EN

Obstacles and scientific and technical needs related to the measure taken

No funding and low priority. EN

9.1.2 Based on desk research, targeted surveys and stakeholder consultations, identify IAS that should be prioritized for prevention, control and eradication

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Fisheries Department has identified 14 species as invasive including African catfish and Tilapia. There are large numbers of ornamental species in Myanmar but no information is available on invasiveness. Forest Department has prepared a booklet for all recorded invasive alien species in Myanmar. EN

National Target(s)

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Only a few aquatic invasives have been identified and there is no action planning. EN

Obstacles and scientific and technical needs related to the measure taken

Funding, capacity and time. EN

9.1.3 Identify the measures required to strengthen controls on potential transboundary movement of lAS

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Department of Agriculture has established a plant quarantine facility at Yangon Airport and there is a law in place to protect against entry of plant species especially those species used as crops. EN

National Target(s)

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No data available on numbers of plants seized at airport. No information for marine shipping or land crossings. EN

Obstacles and scientific and technical needs related to the measure taken

Unknown EN

9.1.4 Identify the priority capacity building needs of land managers and government authorities, in relation to lAS identification, prevention and management

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Department of Agriculture, Plant Biotechnology Center (Yangon) regularly examines crop seeds from companies (both exports and imports) for presence/ absence of GMOs and issues certificates of safety. In accordance with seed law, imported crops to be registered in Myanmar for cultivation require GMO testing and a non-GMO certificate issued as of from 2014-2015. Samples of 29 crops (rice (paddy, polished, broken), maize, sugarcane, cotton, blackgram, sunflower, chickpea, coffee, cowpea, rice bean, aubergine, tomato, chili (hot), chili (sweet), pumpkin, cucumber, musk melon, bottle gourd, long bean, cabbage, broccoli, cauliflower, papaya, onion, potato, okra, lily flower, carnation, eustoma flower are regularly examined for GMO testing and non-GMO certification. A new biosafety framework is in a third draft.	EN

National Target(s)

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

More checkpoints are required at airports and border crossings, there has been limited training of enforcement personnel, and there is very limited capacity to identify species, especially in agricultural shipments. There is a need to develop guide materials with improved species lists for border personnel and need to strengthen laws to support border personnel.	EN

Obstacles and scientific and technical needs related to the measure taken

Funding and a need for more staff and a need to assign some priority status to IAS in terms of attention by government.	EN

9.1.5 Prepare a 10-year NIASP, through a participatory process involving government, civil society and the private sector.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Incomplete but being prepared. EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Not complete yet EN

Obstacles and scientific and technical needs related to the measure taken

Time to complete the work. EN

10.1.1 Carry out detailed feasibility assessments and public consultations at priority sites for establishing new LMMAs and MPAs

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Three LMMAs were established in the Myeik Archipelago (see Target 6.1). As a result of other work by WCS, the local communities in Kyeintali Onshore Fishery Co-management Area have proposed to the government to designate Nanttha Kyun as marine protected area, with an area of 725.2 km2 for co-management of the onshore fishery in Kyeintali of Gwa Township, Thandwe District, of Rakhine State. EN

National Target(s)

10.1 By 2020, 15 per cent of Myanmar's coral reefs conserved within MPAs, including LMMAs and other area-based conservation measures

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There is progress towards local management of fisheries associated with reefs, although so far, few LMMAs have been established. However, success at these areas suggests that other LMMAs may seen also be approved. There is considerable support among the NGO community for the LMMA approach. EN

Other relevant information

See Target 6.1 for documents. EN

Obstacles and scientific and technical needs related to the measure taken

Capacity and funding to organise LMMAs, as well as the remoteness of many of the communities, are the main issues for succeeding with this target by 2020. EN

10.1.2 Enhance the capacity of Mawlamyine University as a national centre for marine excellence

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The capacity of Mawlamyine University is being enhanced as a National Centre for Marine Excellence by working together with several foreign universities in Europe and USA, as well as with local and international organizations. It is necessary to send more of the younger faculty members abroad to obtain international exposure and experience. A funding program with the EU is enabling greater international exposure. EN

National Target(s)

10.1 By 2020, 15 per cent of Myanmar's coral reefs conserved within MPAs, including LMMAs and other area-based conservation measures

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There is recognition that improvement at the university is required to be come a national centre of excellence, however considerable work remains to be done. EN

Relevant websites, links, and files

Marine sciences at Mawlamyine University

Obstacles and scientific and technical needs related to the measure taken

Funding for international exchanges, additional faculty, and funds o seed research are limiting achieving this target. EN

10.1.3 Establish a national coordination body to manage overlapping jusisdictions and coordinate activities

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Within this 3 years, Myanmar has formed several national level bodies fully or partially related to biodiversity with mean purpose of promoting collaboration and addressing issues in collaborative manner: National Biodiversity Conservation Committee, National Coastal Resources Management Central Committee, National Environmental Conservation and Climate Change Central Committee, National Wetland Committee, National Land Council. EN

National Target(s)

10.1 By 2020, 15 per cent of Myanmar's coral reefs conserved within MPAs, including LMMAs and other area-based conservation measures

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The committee has only begun its activities and so results and achievements are uncertain yet. EN

Relevant websites, links, and files

Myanmar-Thailand seminar on reef protection, IUCN 2017

Obstacles and scientific and technical needs related to the measure taken

Unknown. EN

10.2.1 Develop an effective interagency law enforcement system for the marine environment and ensure adequate resources, funding and incentives

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No information EN

10.2.2 Confiscate gear and issue appropriate fines engaging in illegal and destructive fishing practices

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No information available EN

11.1.1 Approve proposed Lenya National Park, Lenya National FD Park Extension, Mahamyaing Wildlife Sanctuary and Inkhine Bum National Park

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Establishing a PA means the area is designated as a PA upon the approval of Government, after survey, negotiation with communities and concerned stake holders, and consensus on establishment. This is a long process and so far under the NBSAP, only Inkhaing Bum National Park has been newly established to 2018, at 300.5 km2. No management plan is available yet for that park. However, the gazetting of proposed Mahamyaing Wildlife Sanctuary is in the final stage. Gazetting of Lenya and Lenya N.P extension has been delayed. In support of establishing proposed Lenya and Lenya extension National Park, Biodiversity and Nature Conservation Association studied habitats of Gurney’s Pitta and other important species, and how a species becomes endangered in the areas around Lenya and Lenya (expanded) starting from 2011 to 2016. Currently, the Nature and Wildlife Conservation Division, Taninthayi Region Government, administrators from GAD, and Karen National Union are supporting conservation of Gurney’s Pitta and their habitats, with the participation of local communities. Though protected some areas could not be established as planned, in addition to Inkhaing Bum National Park, two more protected areas, Phar-Baung-Taung Nature Reserve in Mon State and Htaung-Wee-Taung, a Geo-physically Significant Reserve in Kayin State, were established. The number of proposed protected areas has increased to 19 in 2018.	EN

National Target(s)

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The target date is 2020, and so more PA is planned but the process takes time. Myanmar successfully established one of these parks, and is close on another.	EN

Other relevant website address or attached documents

Inkaing Bum NP GIS/GPS data

Obstacles and scientific and technical needs related to the measure taken

The key obstacles are time for the process, negotiating with local communities, availability of funding, and lack of capacity (sufficient staff).	EN

11.1.2 Establish Taninthayi National Park and Pan The Taung National Park

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Gazetting of Taninthayi NP is delayed and gazetting of Pan-the-taung NP is in process. However, WWF has corridor planning work that is ongoing; this includes the socio-economic survey in Pawklo (Banchaung area), village boundary and land use mapping, consultations on the wildlife sanctuary boundaries, and initial land use planning at the village level (14 villages for 152,533 ha), and there is considerable work on GIS mapping (forest types, elevation, water, soils, etc.), cataloging of biodiversity resources and planning for park management that is proceeding or completed at Taninthayi by several groups and government working in the area (e.g., Flora and Fauna International, Wildlife Conservation Society, WWF, ITTO).	EN

National Target(s)

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The process for both parks is advancing, only at a slower pace than expected. At Taninthayi negotiations with local stakeholders and with Thailand have been slow, while logging, roads and other developments are advancing within the proposed park area. Nevertheless, achievement of the target is expected by 2020. The international Tropical Timber Organisation (ITTO), FFI, WCS, WWF, and others are working to protect and maintain the area as a Park.	EN

Other relevant website address or attached documents

Review-of-the-Tanintharyi-Nature-Reserve-Project-2014Final.pdf
Logging in Tanintharyi proposed park
ITTO tanintharyi.pdf (ITTO project at Taninthayi)
TCP Report 28c, Atlas of Spatial Data for Forest Planning in Tanintharyi.pdf (Maps of forest

types and elevation included, FFI report)
FFI & FI 2015 Tanintharyi Atlas.pdf (All spatial data for Taninthayi, FFI report)

Obstacles and scientific and technical needs related to the measure taken

Difficult negotiations with local communities and other demands for the lands within the proposed Taninthayi Reserve have slowed development of the area as a park. Negotiations are ongoing but there is considerable resistance to a PA in the areaowing to economic development.	EN

11.1.3 Establish Hkakaborazi National Park Southern Extension (SE), Imawbum National Park, and Za Loon Taung Protected Area

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Gazetting of Imaw Bum NP and Za Loon Taung PA is under the process, while the gazetting of Hkakabo Razi NP SE (part of the UNESCO World Heritage Site) is delayed due to local stakeholder objections related to land tenure. Myanmar's Forest Department has been working with UNESCO since 2013 to designate Hkakaborazi Region (consists of Hkakabo Razi National Park, Hponkan Razi Wildlife Sanctuary and Hkakabo Razi Southern Extension) as a Natural World Heritage Site. The Forest Department and UNESCO are now undergoing an initiative to safeguard natural heritage in Myanmar. Community members from nearby villages have been appointed and trained as park guards in both the national park and the wildlife sanctuary to monitor and report on the illegal activities in the areas.	EN

National Target(s)

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Two parks will soon be gazetted, while negotiations at Hkakaborazi NP SE continue.	EN

Obstacles and scientific and technical needs related to the measure taken

The main obstacle at Hkakaborazi NP SE is the time it takes to work with local communities on land tenure and land rights issues to obtain free and prior informed consent.	EN

11.2.1 Conduct a review of opportunities for recognizing governance and management diversity, including ICCAs, within the current legal and governance framework, including forests, fisheries, protected area categories, and other area-based conservation approaches

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Under the “Conservation of Biodiversity and Protected Areas Law” enacted in 2018, there is a new protected area category, namely “Community Conserved Protected Area (CCPA)”. EN

National Target(s)

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There are onging negotiations - see 11.2.3 EN

Obstacles and scientific and technical needs related to the measure taken

The process is difficult because each case is different and parties need to decide how long is long enough and what resources were used vs. protected. EN

11.2.2 Recognize additional governance types and management FD categories using appropriate legal tools, including amendments of laws and revisions of implementing rules and regulations

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

In 2018, a new Conservation of Biodiversity and Protected Areas Law was enacted. This law provides increased flexibility for the government, especially with regards to enforcement, while recognizing the rights of local communities. EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Passage of a new protected areas law was accomplished in 2018. EN

Other relevant website address or attached documents

New protected areas law

Obstacles and scientific and technical needs related to the measure taken

This measure and proposed measures 11.2.1 and 11.2.3 were not accomplished fully owing to insufficient capacity. EN

11.2.3 Pilot governance types and management categories by establishing co-management PA systems, recognizing ICCAs, and developing PA zonation

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Under the "Conservation of Biodiversity and Protected Areas Law", there is a new protected area category called "Community Conserved Protected Area (CCPA)". CCPA is mainly intended to provide legal provisions for any local community who have protected resources and areas for their needs or spiritual belief for long time. The details of the management arrangement for CCPA is being prepared in the draft Conservation of Biodiversity and Protected Areas Law Rules

Recently, a concerned local community proposed to change the Phar-Baung-Taung Nature Reserve, established on 7th August 2018 in Mon State, with an area of 188.6 ha, in to Phar-Baung-Taung Community Conserved Protected Area. The Forest Department submitted the community's proposal to the Minister's Office with a recommendation to allow.

The new Law also allows to co-management on PAs between the community and the Government. Furthermore, according to Section 13 (g) of the Law, the Director General may, with the approval of the Ministry: "designate buffer zones in the Protected Areas for regional development activities, socio-economic development of local community and ecotourism development without having any adverse impact on the core zone, if necessary. Within the designated buffer zone, community forestry, community-based tourism and management of locally managed marine area may be permitted, after stipulating regulations, in accordance with procedures". EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

Obstacles and scientific and technical needs related to the measure taken

Lack of capacity but also difficulties in determining a definition for an LCCA. EN

11.3.1 Complete METT surveys in at least 20 protected areas.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

METT surveys were completed for 7 areas since 2015: Flora and Fauna International (2 areas), Biodiversity Consultancy (1), and Wildlife Conservation Society (4) (see Table attached).

In collaboration with IUCN and Norwegian Environment Agency, NWCD will organize a training workshop in 3-7 December 2018 in order to promote capacity as well as to develop new METT that would be fully suitable for the specific Myanmar conditions. EN

National Target(s)

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

A third of the target has been achieved and future surveys are planned. Whether or not 13 more surveys will be complete by 2020 is uncertain. EN

Relevant websites, links, and files

TCP Report 34, METT for Lenya Proposed NP Extension (Jun 2016).pdf
METT survey results .docx

Obstacles and scientific and technical needs related to the measure taken

Capacity is the key obstacle preventing more surveys by 2018. EN

11.3.2 Implement SMART in at least 15 PAs.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Forest Department and WCS are working to implement park patrols using SMART in 20 PAs including: Hkakabo Razi National Park, Hponkan Razi Wildlife Sanctuary, Hukaung Valley Sanctuary and Htamanthi Wildlife Sanctuary, Natmataung National Park, Alaungdaw Kathapa National Park, Rakhine Yoma Elephant Range, Minsontaung Wildlife Sanctuary, Shwesettaw Wildlife Reserve, Indawgyi Wildlife Sanctuary, Chatthin Wildlife Sanctuary, Popa Mountain Park, Shwe U Daung Wildlife Sanctuary, Pan Laung and Pyada-Lin Cave Wildlife Sanctuary, Inlay Lake Wetland Wildlife Sanctuary, Moeyungyii Wetland Sanctuary, Meinmahla Kyun Wildlife Sanctuary and Lampi Marine National Park. Several capacity building training sessions and field exercises were conducted, in collaboration with WCS, Oikos and FFI, to enhance practices using SMART in these Protected Areas. Each PA is now submitting monthly reports on SMART activities to the NWCD Director Office.	EN

National Target(s)

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The target has been exceeded and has proved to be a very effective tool to guide management activities in the 20 PAs.	EN

Obstacles and scientific and technical needs related to the measure taken

None	EN

11.3.3 Implement management plans addressing conservation priorities and investment in at least five PAs

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The number of protected areas with completed park management plans increased from 2 in 2015 to 6 in 2018; Lampi Marine NP (2014-2018), Taninthayi Nature Reserve (2013-2017, 2018-2022), Alaungdaw Kathapa National Park (2018-2023),	EN

Natmataung National Park (2018-2023), Indawgyi WS (2018-2023), Meinmahla Kyun WS (2018-2023). Forest Department, ASEAN Centre for Biodiversity and WCS have cooperated on developing 5-year management plans (2018-23) for Alaungdaw Kathapa National Park (AKNP) and Natmataung National Park (NMTNP). In addition, management plans are being prepared for 7 seven more PAs: Hkakabo Razi NP, Hponkan Razi WS, Htamanthi WS, Popa Mountain Park, Chatthin WS, Shwesettaw WS and Moeyungyi Wetland Sanctuary. The Management Plan for Lampi MNP is being revised. WCS has recently finalized a Strategy and Road Map for Capacity Development on Effective Management of Protected Areas in Myanmar.

A project to improve the sustainability of protected areas management is being carried out by WCS focussing on Hkakabo Rrazi National Park, Hponkan Kan Razi National Park WS, Hukaung Valley Wildlife Sanctuary and Htamanthi Wildlife Sanctuary. The project is being implemented to improve implementation of biodiversity conservation and promoting national policies of Protected Area Management, enhance buffer zone management in protected area, and to enhance socio economic development of local communities.

National Target(s)

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The target was exceeded. The aim of these plans is to improve the management of the parks by providing guidance and methods to local area staffs. The broad cooperation among NGOs and government has been highly beneficial in delivering a key need for PAs in Myanmar. EN

Relevant websites, links, and files

Lampi Marine PA Management Plan
WCS Success Story_AKNP&NMTP Management Plans_ENG.pdf (WCS Management planning for Alaungdaw Kathapa National Park and Natmataung National Park)

Obstacles and scientific and technical needs related to the measure taken

Obstacles to development of management plans are the limited staff in parks and the funds available to develop the plans and train staff. EN

11.3.4 Implement pilot projects in at least five PAs involving local communities in designating buffer zones and co-management providing incentives for conservation and compensation for restricted access

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

WCS has been working with local organizations and local communities during the process of developing management plans for Natmataung National Park and Alaungdaw Kathapa National Parks. WCS is currently training interested young people from the villages around Natmataung National Park, Alaungdaw Kathapa National Park, Htamanthi Wildlife Sanctuary, Hkakabo Razi National Park, and Hponkan Razi Wildlife Sanctuary in conserving the parks and sanctuaries. Under the FD-ACB’s Small Grant Programme for ASEAN Heritage Parks project, young people from the community near Natmataung and Alaungdaw Kathapa National Parks, Indawgyi and Meinmahla Kyun WS were trained as community rangers and participated in patrolling.	EN

National Target(s)

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Local communities are involved in management of two park management plans and are being trained at five other parks. Success has not been measured as the projects are very early in implementation.	EN

Obstacles and scientific and technical needs related to the measure taken

Funding and capacity limit achieving this measure.	EN

11.3.5 Expand community-based participatory biodiversity monitoring in and around PAs

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Under the FD-ACB’s Small Grant Programme for ASEAN Heritage Parks project, trained community rangers are participating in community-based in law	EN

enforcement activities being conducted in Meinmahla Kyun WS,and Indawgyi WSs, Alaungdaw Kathapa NP and Natmataung NPs. This is part of implementing the respective management plans. WCS is initiating community based participatory biodiversity monitoring in Mount Victoria National Park. Oikos and NWCD monitor sea turtles and provided 1 local training session in 2018 in Lampi Park (25 people, with 8 women). BANCA has carried out biodiversity monitoring in Kelatha Wildlife Sanctuary with Kelatha Forever and local village support.

National Target(s)

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There are no data to assess effectiveness, nevertheless, several communities are now actively involved in protecting their local PAs. EN

Obstacles and scientific and technical needs related to the measure taken

Time, capacity and funding EN

11.4.1 Nominate at least one natural site for inclusion on the UNESCO World Heritage list

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

In 2013, Forest Department (FD), WCS, and UNESCO worked together to nominate Hkakabo Razi area and landscape as the first natural heritage site in Myanmar for inclusion on the “UNESCO World Heritage List”. The area has yet to be approved, however, owing to local opposition. WCS contributed by supporting the preparation of the Hkakabo Razi Landscape Management Plan and Putao District Ecotourism Action Plan, which are important in nomination for inclusion on the List. Hkakabo Razi area is nominated because it meets two criteria for inclusion on World Heritage List: Criteria ix (outstanding ecological and biological processes) and Criteria x (outstanding biological diversity).

The current list of possible Natural World Heritage Sites in Myanmar include: the Hkakabo Razi landscape, Hukawng Valley Wildlife Sanctuary, Indawgyi Wildlife Sanctuary, Natmataung National Park, Myeik Archipelago, the Ayeyawady River EN

Corridor and the Taninthayi Forest Corridor. Among these tentative sites, Hkakabo Razi landscape and Mt. Hkakabo Razi has been given top priority.

National Target(s)

11.4 By 2020, Myanmar's sites of premier conservation value are recognized by relevant international designations, through the designation of one natural WHS, three additional Ramsar sites, and one Biosphere Reserve

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Several sites have been nominated but none has gained acceptance. EN

Relevant websites, links, and files

UNESCO sites Myanmar
Inle Lake Project - Final Report (June 2017).pdf

Obstacles and scientific and technical needs related to the measure taken

None EN

11.4.2 Nominate at least two additional Ramsar sites

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

See data at Measure 5.3.2 EN

National Target(s)

11.4 By 2020, Myanmar's sites of premier conservation value are recognized by relevant international designations, through the designation of one natural WHS, three additional Ramsar sites, and one Biosphere Reserve

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The target was exceeded. EN

Obstacles and scientific and technical needs related to the measure taken

None EN

Relevant websites, web links and files

Wetlands conservation myanmar_action_plan_2016_.pdf (Priority wetlands)

11.4.3 Nominate at least one additional Biosphere Reserve

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Inlay Lake region and Indawgyi Lake region were designated as MAB Reserves in 2015 and 2016, respectively EN

National Target(s)

11.4 By 2020, Myanmar's sites of premier conservation value are recognized by relevant international designations, through the designation of one natural WHS, three additional Ramsar sites, and one Biosphere Reserve

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The target was exceeded with acceptance of two sites as MAB Reserves. EN

Relevant websites, links, and files

Inlay Lake MAB
Indawgyi Lake

Other relevant website address or attached documents

InlayLake.jpg (Map)
Indawgyi.jpg (Map)

Obstacles and scientific and technical needs related to the measure taken

None EN

11.5.1 Pilot marine spatial planning by developing a spatial plan for the Myeik Archipelago through a multi-stakeholder process

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There is some progress at Myeik with assistance from FFI towards developing more marine protected area. Elsewhere, WCS produced an advice document on marine spatial planning in 2016. WCS trained 30 people in marine planning in 2017, 6 of whom were women and FFI trained 174 people, mostly women, on marine protected areas management and conservation for the inshore fishery at Taninthayi. A Village Fishing Society has been formed with various subcommittees and overseen by leaders to assist in planning development. The government has made a commitment to have a marine spatial plan by 2121. EN

National Target(s)

11.5 By 2020, a Marine Spatial Plan with nested MPAs is prepared for the Myeik Archipelago.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Work at Myeik has been started but there is no spatial plan used for managing the area as yet. EN

Relevant websites, links, and files

TCP Report 47, Marine Protected Area Training, Myeik (Mar 2017).pdf

Other relevant website address or attached documents

Marine spatial planning advice WCS 2015.pdf
Myanmar Marine Conservation Review WCS.pdf

Obstacles and scientific and technical needs related to the measure taken

Funding, priority and capacity are the main obstacles EN

11.5.2 Establish at least one new MPA that can together with Lampi Marine National Park serve as a model and pilot for future MPA management

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There has been considerable work in the area of Lampi with the establishment of LMMAs, and there is a plan for these to lead to an MPA eventually. EN

National Target(s)

11.5 By 2020, a Marine Spatial Plan with nested MPAs is prepared for the Myeik Archipelago.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Work is proceeding. EN

Obstacles and scientific and technical needs related to the measure taken

Time and funding. EN

12.1.1 Pilot and scale up conservation and research initiatives for priority species

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

There has been a very large increase in the number of species for which conservation and research programs have been instituted. These programs are generally cooperative among government, NGOs, museums, and/or universities. Myanmar has many globally endangered species as well as several globally recognized 'flagship' species, such as tigers, Asian elephants, gaur, and Eld's deer, hence understanding populations and habitats is important to improve conservation. In some cases, work is done to understand populations, for others range descriptions and habitat use information is being developed, and for some others, conservation programs are being, or have been, developed.

Following is a list in bullet form of the species for which various groups are studying and/or monitoring:

- Asian Elephant – Smithsonian and Wildlife Conservation Society (population dynamics see Sampson et al. 2018, genetics, Yangon University); FFI; elephant management plan (2018)
- Flying foxes - Smithsonian
- Hoolock gibbon – Flora and Fauna International and Wildlife Conservation Society
- Snub-nosed monkey - Flora and Fauna International
- Tiger (at Taninthayi) – Flora and Fauna International and Wildlife Conservation Society
- Tiger (at Htamanthi) – Wildlife Conservation Society , IUCN
- Baer's pochard – Biodiversity and Nature Conservation Association and

EN

Wildlife Conservation Society

- Gurney’s Pitta – Biodiversity and Nature Conservation Association and Flora and Fauna International
- Green peafowl – Biodiversity and Nature Conservation Association
- Turtle and tortoise – Wildlife Conservation Society, Oikos
- White-bellied Heron – Wildlife Conservation Society
- White-rumped vulture – Wildlife Conservation Society
- Black-bellied tern – Wildlife Conservation Society
- River tern - Wildlife Conservation Society
- Plain-pouched hornbill – Wildlife Conservation Society
- Jerdon’s babbler - Wildlife Conservation Society
- Sun Bear – Oikos and Wildlife Conservation Society
- Clouded leopard – Wildlife Conservation Society
- Small cat species - WCS
- Ayeyawady dolphin – Wildlife Conservation Society
- Spoon-billed sandpiper - Biodiversity and Nature Conservation Association
- Sarus Crane – Wildlife Conservation Society
- Yellow-breasted Bunting - Wildlife Conservation Society
- Shorebird monitoring (2 sites) – Biodiversity and Nature Conservation Association
- Seagrasses – Flora and Fauna International, FD, Univ.
- Conservation of Moyingyi Wetland Ramsar Site,
- Endangered Sea Turtle in Mein-ma-hla Kyun.
- Helmeted hornbill – Biodiversity and Nature Conservation Association
- Dugong – Dept. Fisheries
- Habitat, distribution and genetics for Conserving Eld’s Deer in Chatthin Wildlife Sanctuary and Shwesettaw Wildlife Reserve
- At Tamanthi Wildlife Sanctuary: tigers, White-Winged Duck (Asarcornis scutulata), Hornbill species, Black-Necked Stork, and River Tern (Sterna aurantia). Also Guar (Bos gaurus), Sambar Deer (Rusa unicolor), Barking Deer (Muntiacus vaginalis) and Eurasian Wild Pig (Sus scrofa) are monitored
- Myanmar Roofed Turtle (Batagur trivittata – Wildlife Conservation Society, Chindwin Basin
- Hkakabo Razi National Park and Phonkanrazi Wildlife Sanctuary, the following species are under specific protection and management: Black Musk Deer (Moschus), Shortritge’s Langur (Trachypithecus shortridgei), Chinese Pangolin (Manis pentadactyla), Dhole (Cuon alpinus), Red Panda (Ailurus fulgens), Tarkin (Budorcas taxicolor), Hoolock Gibbon (Hoolock spp.), Himalayan Black Bear (Ursus thibetanus), Sun Bear (Helarctos malayanus), Clouded Leopard (Neofelis nebulosa), Marbled Cat (Pardofelis marmorata), Bengal Slow Loris (Nycticebus bengalensis), Sambar (Rusa unicolor), Stump-tailed Macaque (Macaca arctoides)

- Conservation of high altitude mountain areas in Natmataung NP, Hukaung Valley WS, Hponkanrazi WS, Hkakaborazi NP - University of Philip-Marburg, Germany
- Plant Species in the Sagaing Region and Kachin State - Xishuangbanna Tropical Botanical Garden (XTBG), Chinese Academy of Science
- Trout species – Yangon University and IIED, Ayeyawady River and Delta area
- Short-headed catfish – Yangon Univ., Tokyo University of Marine Science and Technology
- 3 new gecko species reported – Flora and Fauna International, FD, University, Taninthayi area
- Sea turtle species monitoring – Oikos, NWCD, Lampi Park
- A new Marine Biodiversity Atlas (Wildlife Conservation Society, Birch et al. 2016), primarily deals with non-fish (sharks, rays, turtles, cephalopods and shrimp), but also provides data for fish catch
- habitats of fish fingerlings, their migration and distribution at estuaries of to identify and establish species - Mawlamyine University, Sittaung River and Than Lwin River
- fish species - Monywa University, wetlands and along Chindwin River in Monywa Township, Sagaing Region
- fish species in the Chindwin and Ayeyawady Rivers - University of Yangon, University of Mandalay

- 22 freshwater wetland sites for monitoring of migratory waterbird species especially for Baer's Pochard in Mandalay and Sagaing Region, central Myanmar.
- Regular EAAFP flyway survey of Spoon-billed Sandpiper at the Gulf of Mottama.
- Regular monitoring survey of Spoon-billed Sandpiper in Nanthari Island, Sittwe, Rakhine.

A recent study (Sampson et al. 2018) found that the rate of poaching of elephants in Myanmar was far higher than previously suspected, and projected a rapid population decline in the Bago Yoma mountain area as a result. Elephants in the Taninthayi region appeared less affected but the sample there was only based on four collared animals. These data suggest that elephants in the wild may soon be extinct in Myanmar, if current rates of poaching continue. As a result of the declining population, Myanmar has instituted a 10-year action plan (in 2018) to halt and reverse the population decline.

National Target(s)

12.1 By 2020, the conservation status of priority, globally threatened species In Myanmar has improved
12.4 By 2020, conservation status of migratory species has been Improved

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

There has been a large recent effort through a combination of university, NGO and government projects to compile data for individual species of importance in Myanmar. This effort is reflected in the list provided above and in the amount of data now available for many species, for which data were entirely lacking in 2014. EN

Relevant websites, links, and files

Elephant poaching Myanmar PLOS ONE 2018.pdf (Sampson et al. 2018)
Baer's Pochard conservation-2017-.pdf
MONITORING OF MIGRATORY SHORE BIRDS SURVEY IN THE GULF OF MO.pdf
TCP Report 18, Bird Fauna of the Northern Myeik Archipelago (Aug 2015).pdf
TCP Report 13, Survey of the Coral Reef Fishes of the Myeik Archipelago (July 2015).pdf
TCP Report 32, Bird Fauna of the Southern Myeik Coast (Aug 2016).pdf
TCP Report 35, FFI Tanintharyi Elephant Project, First Annual Report to USFW (Sep 2016).pdf
TCP Report 29, Fish Species in the Lenya River Basin (Jan 2016).pdf
WCS Marine Biodiversity Atlas 2016
OIKOS Success Story_Sun Bear.pdf
"Voices for Momos" (elepahnts) WWF campaign
OIKOS Success Story_Sea Turtle Awareness Campaign.pdf
Information site for threatened species in Myanmar
Forest species composition vs. rainfall Khaine et al Forests 2017
Karen State camera-trapping study
Rakhine Article.pdf (Seagrasses of Rakhine coast)
JAMB-06-00164.pdf (Seagrasses Myeik)
Dugong Report to CMS 2017
Flying fox research
CatNewsSI8ThanZawetal.pdf (Small cats distribution Myanmar survey)
Tiger_Conservation.pdf (WCS tiger conservation)

Obstacles and scientific and technical needs related to the measure taken

The only obstacles to proceeding further with this objective, for increased efforts on individual species, are funding, capacity (personnel), and time. EN

12.1.2 Expand programmes to establish assurance colonies, captive breeding and wild release programmes of threatened tortoises and freshwater turtles

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Wildlife Conservation Society, Oikos, Flora and Fauna International, and government has been working since the early 2000s on turtles because many of these species were being over-harvesting and populations were declining. Work on conserving Myanmar Roof Turtle, which is only endemic in Myanmar and the second rarest species all over the world, started through Wildlife Conservation Society in 2016, and 900 Myanmar Roof Turtle were successfully bred in captivity in 2017. From these, 60 turtles have been released into rivers and creeks which are their natural habitats. Captive breeding of Myanmar Star Tortoise started in 2018 and the number has increased to 5,575 and wild release is also being done. Wild release of Star Tortoise from Minsontaung Wildlife Sanctuary has been done for four times, with a total of 1050 tortoises released into wild. Likewise, captive breeding of Star Tortoise from Shwesettaw Wildlife Sanctuary started in 2014 and a total of 950 tortoises have been released into wild for second time in 2018. A Turtle Rescue Center was established at the Zeepin Forest Reserve in Bantbway Village of Naung Cho Township, Shan State, in December 2012. Since then, fresh water species of turtles have been continuously rescued from illegal markets, treated at the centre, and released back into into wild. Captive breeding is also carried out at the Centre. Yangon University, Department of Zoology cooperates with Flora and Fauna International (Flora Fauna International) and Department of Fisheries to implement conservation of Myanmar Sea Turtle. In October 2017, two workshops were organized in Kadone Kalay Island of Bogalay Township, Ayeyawady Region and Dawei, Taninthayi Region to raise awareness with the local people about the turtles. Field studies were also conducted. Oikos, another NGO, is also working on sea turtles Lampi Marine National Park, including Green Turtle (Chelonia mydas), Hawksbill Turtle (Eretmochelys imbricata) and Leatherback Turtle (Dermochelys coriacea). In 2018, Istituto Oikos conducted training, surveys and awareness-raising activities on the monitoring, conservation and protection of sea turtles at the park. A sea turtle monitoring protocol was developed by a biodiversity expert from Insubria University (Italy), provided training to the Park Staff, and as a result, sea turtle monitoring activities are now regularly carried out in three key nesting sites in the Park. Overall, there are now 10 assurance colonies for turtles and tortoises in Myanmar and a success story from Wildlife Conservation Society is included in this report.	EN

National Target(s)

12.1 By 2020, the conservation status of priority, globally threatened species In Myanmar has improved

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Several key species are recovering thanks to the large efforts by NGOs and government that focussed on these species.	EN

Relevant websites, links, and files

https://myanmar.wcs.org/Wildlife/Turtle-and-Tortoise.aspx
OIKOS Success Story_Sea Turtle Awareness Campaign.pdf

Other relevant information

Successful case study from WCS: The Burmese Star Tortoise was once common in the dry zone of central Myanmar, a desert-like region formed by the rain shadow of the western mountains. Centuries of subsistence harvesting by rural villagers depressed populations in many areas, but the death kneel for this species was sounded when intensive illegal collecting for the high-end international pet trade began in the mid- to late 1990s. Populations declined precipitously over the span of just a few years and by the early 2000s, Star Tortoises had disappeared from the wild. Demand from illegal wildlife traffickers was so high that even tortoises housed in government-owned facilities were liable to theft. Fortunately, the Myanmar Forest Department working closely with Turtle Survival Alliance (TSA) and the Wildlife Conservation Society-Myanmar Program (WCS)had the foresight to establish several captive-breeding colonies (assurance colonies) using about 175 tortoises confiscated from wildlife traffickers. Heavily guarded assurance colonies were established at secure locations where the husbandry techniques necessary to propagate this species were pioneered. The captive Star Tortoises proved to be prolific breeders and numbers increased rapidly. Indeed, by 2017, the colonies had swelled to over 14000 tortoises and 2018 promises to yield another bumper crop of hatchlings. But ex-situ conservation is about more than simply producing and then stockpiling large numbers of animals in captivity. Ultimately these animals must be returned to areas of secure habitat with the objective of establishing viable populations in the wild. With this goal in mind, the Star Tortoise Recovery Task Force – a joint effort between the Forest Department and TSA/WCS – initiated an ambitious reintroduction program at Minzontaung Wildlife Sanctuary in 2013. Captive-bred and head-started tortoises were transferred to “soft-release” pens in the sanctuary and allowed to acclimate to their new surroundings for periods of up to one year before being released. Most tortoises were out-fitted with VHF radio telemetry packages making it possible for field researchers to monitor post-	EN

release survival and dispersal. The initial results were encouraging; survival was high and most turtles remained near the acclimation pens rather than wandering out of the sanctuary where they might fall victim to illegal poachers. Additionally, the recovery task force worked closely with villagers living around the sanctuary to insure the support of local communities. In light of the success of the original release, subsequent years saw a string of additional reintroductions and now almost 900 tortoises roam freely in the sanctuary. Even more promising, the reintroduced tortoises have begun to breed and several instances of reproduction in the wild have been documented. During the 2017-18 breeding season, a program of experimental egg transplants was launched, in which eggs deposited by females in the assurance colonies were excavated and reburied in the wild.

Based on lessons learned at Minzontaung Wildlife Sanctuary, reintroductions of captive-bred Star Tortoises are now underway at Shwe Settaw Wildlife Sanctuary, an extensive protected area that could ultimately host a wild population numbering in the tens of thousands. Additionally, Chattin Wildlife Sanctuary will soon be assessed as a potential reintroduction site in keeping with long-term goals out-lined in the National Star Tortoise Action Plan developed as part of a workshop held in 2012.
The Burmese Roofed Turtle is another species that came perilously close to joining the ranks of the dinosaurs in the catalog of extinct species. Found only in the larger rivers of Myanmar (Ayeyarwady, Chindwin, and Than Lwin), this large species of aquatic turtle had long been subjected to egg-harvest by riverside communities. So important was this egg harvest that local communities along the upper Chindwin River even enacted conservation measures to safeguard this valuable resource. Unfortunately, these measures were not enough and populations of the Roofed Turtle slowly declined throughout Myanmar. By the late 1990s the species was feared extinct until rediscovered along the Dokthawady and Upper Chindwin Rivers during collaborative expeditions conducted by the Forest Department and WCS/TSA.

Tragically, the population of Roofed Turtles dwelling in the Dokthawady River was extirpated soon after being rediscovered by the construction of a large hydropower dam that submerged the only nesting areas along the river. The situation along the Upper Chindwin was more promising, with a handful of females continuing to nest on sandbars along the river. The early 2000s saw the implementation of an aggressive conservation program that relied on a combination of ex- and in-situ methodologies. First, an assurance colony – the first ever for this species – was established at the Yadanabon Zoological Gardens in Mandalay using turtles recovered from pagoda ponds and others confiscated from fishermen. This effort was initially somewhat problematic with many authorities doubting that large river turtles such as the Burmese Roofed Turtle would even breed in captivity. The naysayers were soon proved wrong when the females began appearing on the artificial beaches every January-March and depositing their eggs, which were incubated naturally in the warm sand.

At the same time an egg collection and head-starting program was implemented at all of the known nesting sites along the Chindwin River. Every year locally hired “beach wardens” monitor sandbanks during the nesting season. Immediately after laying, the eggs are excavated and transferred to a secure incubation area near Limpha Village. The hatchlings typically emerge from the nests days after the rains begin early June, and then are housed in a grow-out facility until reaching maturity. Two additional assurance colonies have been established at Lawkanandar and Htamanthi Wildlife Sanctuaries using head-started off-spring from the Chindwin River. Neither colony has yet begun to reproduce as the turtles are only now approaching sexual maturity but reproduction is expected within the next few years.

Obstacles and scientific and technical needs related to the measure taken

Continued harvesting of turtles remains an issue and many more training exercises for awareness-raising and community level monitoring are needed to ensure survival of these species. Funding is the major limiting aspect. EN

12.1.3 Integrate conservation of wide-ranging species and species with fragmented distributions into local regional and national landscape planning.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

12.1 By 2020, the conservation status of priority, globally threatened species In Myanmar has improved

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

Capacity. EN

12.2.1 Fully implement and enforce the requirements of the CITES Convention through national legislation.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Conservation of Biodiversity and Protected Areas Law (2018) includes provisions for the CITES regulations, including enforcement and specifications for fines.	EN

National Target(s)

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

A new law has been passed pertaining in part to the CITES regulations and with penalties described. How well it is being enforced is uncertain yet. There is a need for transfer of new DNA based technologies to Myanmar to assist enforcement efforts in species identification and assess chain of custody.	EN

Obstacles and scientific and technical needs related to the measure taken

A key obstacle is insufficient enforcement staff and associated resources to enforce the wildlife laws. In addition, in the case of illegal timber, Myanmar has (as yet) no chain of custody rules or the means to ascribe seized wood to a specific location of origin within the country.	EN

12.2.2 Build the capacity of law enforcement authorities to enforce wildlife trafficking regulations, including through involvement in ASEAN-WEN.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Wildlife crime continues to be a serious issue in Myanmar (see Section lll. Assessment) especially affecting elephants, pangolins, orchids, turtles and felids. The inter-agency ‘National Wildlife Law Enforcement Taskforce’ has been established to improve enforcement of wildlife laws. A program called “Securing the Gateway: Reducing Wildlife Trafficking from Myanmar to China” has been slated for 2 years to train and increase the public understanding of the ongoing illegal use and trafficking of wildlife. Several programs were instituted over the past 4 years, including programs with WWF to ““Address Illegal Wildlife Trade in the Greater Mekong” are underway; a program on CITES regulations with the EU	EN

has been completed; a program with India to reduce illegal trade called “Myanmar-India Wildlife Crime Control Nodal Points” (for which 5 of 15 members are women); and an initiative with Istituto Oikos on a Sun Bear Protection Project is being implemented in Southern Rakhine State and Sagaing Region. Other programs include a Wildlife Conservation Society effort called “Stopping Illegal Trade of Wildlife and Their Parts Meeting” was organized in Lashio, Southern Shan State, while another called “Training on Wildlife Species Analysis” was provided in Mandalay, Mandalay Region in September 2017 and in Moneywar, Sagaing Region in December 2017. Those meetings and training sessions gathered government staff and officials from the main law enforcement organizations that are involved in combatting illegal wildlife trade (Customs Department, Myanmar Police Force, Forest Security Unit, General Administration Department, Forest Department, Road Transport Administration Department, Anti-Narcotic Task Force, Advocate General Office, etc). In the Golden Triangle area of Tachileik, WWF provided induction training and follow-up training on Illegal wildlife trade for Government agencies. 22 participants joined both.

European Union (EU), through the Institutional Strengthening and Policy Dialogue Support “My Governance Europe Aid/136228/DH/SER/MM“, is assisting the Forest Department to strengthen the implementation of CITES. The EU assigned two experts to assist the Forest Department to review gaps and necessary interlink ages between key laws relevant to CITES implementation.

Up until August of 2018, 25 charges for illegal wildlife trafficking have been laid and an additional 2 training programs have been conducted.

National Target(s)

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

It is not possible to assess progress without data on numbers of cases investigated and charges laid. Nevertheless, there has been a considerably increased focus on wildlife enforcement, especially under focussed programmes and with training events, improved public awareness, and the new 'Biodiversity and Protected Areas Law' that includes very high penalties for convictions of wildlife crimes.	EN

Obstacles and scientific and technical needs related to the measure taken

A key obstacle is insufficient enforcement staff and associated resources to enforce the wildlife laws. In addition, in the case of illegal timber, Myanmar has (as yet) no chain of custody rules or the means to ascribe seized wood to a	EN

specific location of origin within the country.

12.2.3 Implement alternative livelihood programmes to reduce the dependence of key communities on illegal wildlife trade

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There are now 8 alternative livelihood programmes in place as a part of the effort to reduce illegal wildlife actions. BANCA is working with three indigenous groups (Kayan, Kayin, Rakhine) (CBOs) to create alternative livelihoods: at the KayLaTha wildlife sanctuary, with the Shwe Kantar (Kayin), Kayan Environmental Conservation Network (Kayan) and at Beca (Rakhine) they are establishing Community Business Organisations. In collaboration with, Friends of Wildlife (FoW), a Myanmar local NGO, a livelihood support program is being implemented for elephant poachers. This is the first activity for supporting livelihoods of hunters. But international technical and financial assistance are required to sustain as well as to scale up that activity. Under the Sun Bear Protection Project with Oikos, one of the activities supports community guardians to promote community-based monitoring and reporting about poaching of wildlife, focused on sun bear but also for other wildlife species. FFI working with user (ethnic) groups at Dawei to reduce hunting pressure on wildlife (gibbons), by using walnut production and terraced rice-growing.

In Myanmar, illegal poaching on wild elephant has become very serious issue and the elephant population is declining, in large part because of poaching (See Sampson et al. 2018 under Measure 12.1.1). To help with this effort, WWF has put radio-collars on 18 elephants in the Bago Yoma region. Forest Department and WWF-Myanmar are planning to strengthen protection on wild elephant, and one of the main objectives is to establish a community-based monitoring and reporting system and create alternative livelihoods for poachers, and the following activities will be conducted:

- Employ local community members as informants
- Employ local communities, including poachers/ex-poachers as members of the patrol teams

Starting in 2017, WCS has been implementing livelihood support programs for local communities living near protected areas in order to reduce their dependence on illegal wildlife trade and to provide them with alternative livelihoods. One of those efforts sponsored six local youths to attend Farmer Led Extension Training provided by the Mitta Foundation. The training was conducted for 3 months in 2016. The lessons in that training included sustainable agricultural techniques, livestock and natural resources management.

EN

National Target(s)

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

These alternative livelihood programmes are only recently implemented, as is the new Elephant Conservation Plan (2018). Determining success of the initiatives can only be determined after a few years. The key point though, is that there has been a recognition of working directly with local communities to reduce poaching at the grass-roots level.	EN

Obstacles and scientific and technical needs related to the measure taken

Capacity and time to expand the programmes throughout Myanmar.	EN

12.3.1 Conduct Red List assessments for key taxa, with a particular focus on endemic species

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The total number of species evaluated up to July 2018 was 4473, with 624 species evaluated since 2015. A national Red List working group established in 2018 to begin the preparation on National Red List of Threatened Species of Myanmar. Training to build capacity building for 25 experts from relevant departments, organizations, universities and research institutes with contributions IUCN, WCS and WWF was held in July 2017. That capacity building training exercise was followed by a consultation workshop, which decided on future activities for the working group for preparing the National Red List of threatened species, resulted in forming thematic taskforces for key species groups, with the Notification No. (34/2018), issued on 28th March 2018 by the Union Ministry Office of the Ministry of Natural Resources and Environmental Conservation (MONREC). The taskforces were formed for mammals, birds, reptiles and amphibians, plants and fishes. On 23-26th July 2018, 60 people attended a second training workshop was organized with the objectives to understand assessment methods to identify threatened species, to develop work plan for National Red List preparation, and to revise the list of protected endangered species. The July 2018 workshop added another 69 draft assessments including: 25 freshwater turtles, 5 marine turtles, 1 crocodile, 34 lizards, and 5 snakes for	EN

Myanmar’s red list.

IUCN Red List data on total numbers of En and CR (to June 2018):
(Data are shown as year followed by number listed - see graph attached,)
- Plants (647 spp. assessed): (32 spp. listed), 7 before 2014, 2014 9, 2015 20, 2016 20, 2017 32.
- Mammals (298 sp): (25 spp. listed), 11 before 2014, 2014 13, 2015 20, 2016 24, and 2017 25.
- Birds (1029 sp): (25 spp. listed), 0 before 2016, 2016 9, 2017 16.
- Amphibs (84 sp): (2 spp. listed), both in 2015
- Reptiles (176 sp): (15 spp. listed), none new since 2013
(3 new gecko spp. in Taninthayi will be added once assessed formally)
- Chondrichthyes (56 sp.): (8 listed) 2014 5; 2015 5; 2016 8; 2017 8
- Actinopterygii (1176 sp.): (10 listed), none added 2014-2017
- Mollusca (231 spp.): (2 listed), none added 2014-2017

Six Myanmar species are listed on “Alliance for zero extinction” website, where there are maps showing entire known population ranges (http://zeroextinction.org/site-identification/2018-global-aze-map/):
- Natmattaung for White-browed nuthatch (Sitta victoriae)
- Taninthayi for Thin thin’s stream toad (Ansonia thinthinae)
- Inle Lake for two species of freshwater shrimp: (Caridina annandalei) and (Macrobrachium naso)
- Htamanthi for Burmese roofed turtle (Batagur trivittata)
- May Hka for Myanmar snub-nosed monkey (Rhinopithecus strykeri)

Reasons for red-listing of species in Myanmar are provided on the IBAT website (see link attached), with the main factors being: over-exploitation, land clearing (agriculture and settlement), forest harvesting, and pollution.

The Department of Fisheries, with cooperating groups, are carrying out assessments, with a particular focus on endemic fish species, along the Chindwin River in Sagaing Region. Assessments of endemic bird species in Sagaing Region will also be done with team of faculty members from universities. Several universities, including Yezin and Mandalay Universities, have already contributed assessments for numerous species.

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The national taskforce has been formed, with thematic working groups, and EN

species have been added to IUCN Red List assessments, while a National list has been compiled. Further, there are active research programmes to provide data for further listing assessments

Relevant websites, links, and files

Myanmar species on the AZE website with maps
LIsted species.jpg (Selected IUCN Red-Listed species to 2018)

Other relevant website address or attached documents

Causes of species decline

Obstacles and scientific and technical needs related to the measure taken

The key obstacle is sufficient funding to carry out the surveys necessary to verify population levels and ranges of species, including mapping for such flagship species as tigers and elephants. EN

12.3.2 Hold training workshops to build capacity on application of the Red List categories and criteria.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Forest Department, IUCN, and WCS held two training and organisational sessions on endangered species, in 2017 (40 people; 16 women) and another in 2018 (69 participants; 20 women). The first meeting of National taskforces was held in Nay Pyi Taw in July 2018. Yangon University, Department of Zoology, hosted training workshops to build capacity on the application of the Red List categories and criteria, attended by faculty members and there is a plan to continue to work on developing species assessments. EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

About 75 people have been trained on IUCN listing criteria and many are now actively participating on species assessment taskforces. EN

Obstacles and scientific and technical needs related to the measure taken

The main obstacle is sufficient funds to begin to train more regional and park staff EN

on IUCN listing criteria and how to collect data in an effective standardised manner.

12.4.1 Increased documentation of transboundary species in Myanmar and increased collaboration with appropriate international agencies through exchange of information on migratory species between relevant in-country and international organizations.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Wildlife Conservation Society (Wildlife Conservation Society) cooperates with international organizations, such as Wetlands International. to research and document waterbird species (migratory and endemic species) in the Mandalay Region, Sagaing Region, and Kachin State for the Asian Waterbird Census The latter census has been held annually in January and February for the past 2 years (2017 and 2018). The data have been sent to Wetlands International and Birdlife International. Some important findings included 6 Baer's Pochards (Aythya baeri), a critically endangered species (2 in Pyu Lake and 4 in Paleik Wetland) in Mandalay Region; 11 Black-bellied Terns (Sterna acuticauda), an endangered species in the Ayeyawady River in Sagaing Region, 2 Woolly-necked Storks (Ciconia episcopus), a vulnerable species, in Indawgyi Lake Wildlife Sanctuary and Oaksayae Lake near Myinmu in Sagaging Region, 6 Lesser Adjutants (Leptoptilos javanicus), a vulnerable species, and 3 Sarus Crane (Grus antigone), a vulnerable species, at the Indawgyi Wildlife Sanctuary in Kachin State.

Biodiversity and Nature Conservation Association participates with BirdLife and other international organisations in monitoring shorebirds, including the critically endangered spoon-billed sandpiper (Calidris pygmaea) in the Gulf of Mottama. The Gulf of Mottama is identified as the most extensive and significant intertidal mudflat system in Myanmar for shorebirds, fish and other biodiversity. Its highly productive intertidal mudflats provide a wintering site for an estimated 150,000-200,000 migratory waterbirds. Aside from the important Spoon-billed Sandpiper, other key species include the endangered Nordmann's Greenshank (Tringa guttifer) and Great Knot (Calidris tenuirostris). Over 70 waterbird species have been recorded in the Gulf. There is a management plan by Biodiversity and Nature Conservation Association and IUCN for this important migratory bird area (see attached).

Nanthar Island is one of the most wintering ground for migratory birds species which includes Spoon-billed Sandpiper(CR), Nordmann's Greenshank (EN), Painted Stork (NT), Indian Skimmer (VU), Great knot (EN) and about 5000 small waders wintering on this island. The island is also an important habitat for sea turtle nesting area for Olive Ridley (VU), Leatherback (VU) and Green Turtles (EN). Biodiversity and Nature Conservation Association's local partner Rakhine

EN

Biodiversity and Nature Conservation Association carried out monitoring for Spoon-billed Sandpiper survey on Nanthar Island, October 2016-April 2017.

For migratory ocean species, there is some research on turtle species as well as some information for sharks. (see 12.4.2)

National Target(s)

12.4 By 2020, conservation status of migratory species has been Improved

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There is ongoing collaboration among Forest Department, WCS, and international organisations, primarily for marsh and waterbirds, in some areas. Much work remains to done including organised census for passerine birds and other species, migratory ocean species, and to expand the waterbirds surveys to other major wetlands within Myanmar. The important Gulf of Mottama has been named as a Ramsar site. EN

Relevant websites, links, and files

MONITORING OF MIGRATORY SHORE BIRDS SURVEY IN THE GULF OF MO.pdf (Gulf of Mottama shorebird monitoring BANCA)
MONITORING OF MIGRATORY SHORE BIRDS SURVEY IN NANTHAR ISLAND.pdf (BANCA monitoring at Nanthar Isl.)
IUCN Gulf Mottoma mngt plan.pdf

Obstacles and scientific and technical needs related to the measure taken

The main obstacle is lack of capacity to cover more areas during the limited period during which migrating species are present, inaccessibility of some areas along the coast, and funding to conduct the needed work. EN

12.4.2 Prepare a species conservation action plans to protect endangered migratory species, including marine turtles and mammals, migratory birds and sharks, and to sustain the ecological health of their corridor

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

There is a management plan primarily for migratory bird species, including the spoon-billed sandpiper competed for the Gulf of Mottama (see 12.4.1 for EN

document) by Banca and IUCN. Banca and WCS conducted efforts towards raising awareness of Baer's Pochard through community involvement for one area in Myanmar. (attached)

Wildlife Conservation Society has conducted research on sharks and ray species in 6 townships along Rakhine coastline, from June 2017 to April 2018. The Shark and Ray Conservation Committee has held two meetings and another workshop will be organized in 2018. There is a plan to establish 15 monitoring systems on fishing boats in five townships, where the research was done, with 3 systems in each township, starting in September and October 2018. The aim of this work is to prepare coastal management plans for these species.

National Target(s)

12.4 By 2020, conservation status of migratory species has been Improved

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Few species are the subject of planning and the plan for Mottama is new and has yet to be implemented, while no other plans have been completed. EN

Relevant websites, links, and files

Baer's Pochard conservation conservation 2017-.pdf (BANCA and WCS Baer's Pochard community awareness)

Obstacles and scientific and technical needs related to the measure taken

To prepare a proper conservation plan, good background information is needed for the species. As a result, more funding, capacity and time is needed to conduct the background monitoring and research. EN

12.4.3 Provide field sites for research (wetland ecosystems), monitoring (migratory birds), education and training

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Field sites have been specifically established for migratory species monitoring programmes in the areas described in 12.4.1 and 12.4.2, including coastal areas such as Gulf of Mottama, and important wetlands, such as Inle Lake and Pyu Lake for Baer’s Pochard (see 12.4.2). Banca did training for conservation of spoon- EN

billed sandpiper at 8 Local Conservation Groups at Gulf of Mottoma in 3 ethnic areas (30% of the participants were women).

National Target(s)

12.4 By 2020, conservation status of migratory species has been Improved

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Considering the size of Myanmar, the numerous wetlands and long coastline, much remains to be accomplished in terms of biodiversity monitoring and research within the country.	EN

Obstacles and scientific and technical needs related to the measure taken

Funding, capacity, and the logistical issues with site remoteness and distances are the main obstacles.	EN

13.1.1 Conduct collaborative research to identify national priorities for conservation of genetic diversity of cultivated crops including underutilized crops, medicinal plants, and forest products.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

This target overlaps with targets 13.1.3, 13.2.1, 13.2.3, and 14.4.1 and is discussed further under those descriptions. Specifically for unknown and underused useful species, the Ministry of Agriculture (MAg.) has a current research project with FAO on neglected or under-used species as future foods known as “Creating Enabling Environments for Nutrition-sensitive Food and Agriculture to Address Malnutrition” to implement the “Zero Hunger Challenge”. There is also ongoing research on crop gene diversity, described under other targets below. There is a recent publication on medicinal plants in Myanmar (see link). No work was recorded for forest plant genetic materials although ethnobotanical work is ongoing with some recent publications (links attached). For example, a project entitled “sustainable use of plant resources with particular emphasis on the medicinal plants of Shan State, Botanical inventory and subsequent evaluation” is being carried out by Markino Botanical Garden. Plant Biotechnology Center (Horticulture and Plant Biotechnology Division, Department of Agriculture) conducted research on: characterizing Pawsan rice (Oryza sativa L.) varieties collected from Ayeyawaddy region as revealed by	EN

morphological, physicochemical and molecular markers (2018); a morphological characterization on Sein Ta Lone Mango (Mangifera indica L.) accessions from five different regions in Myanmar (2018); and the genetic variability of Myanmar mango land races (Mangifera indica L. var. Sein Ta Lone) from different eco-regions, using microsatellite markers (2018).

National Target(s)

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.
13.3 By 2020, a crop wild relative action plan has been initiated

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Many of these projects are recently started (April 2018) and results are unknown, but some current research has been published, especially for medicinal plants. EN

Relevant websites, links, and files

FAO/DAg project on underused species 2018
Future Smart Food - Asia
Medicinal plants of Myanmar DeFillips and Krupnick 2018
Edible plant species in Shan State, Tant Shin et al, 2018
HIV research medicinal plants Myanmar, Nwet Nwet Win et al., 2017
Medicinal Plant List of Myanmar, 2nd edition. Khin Maung Lwin and Myat Kay Thwe Lwin

Obstacles and scientific and technical needs related to the measure taken

There are no current obstacles to this research agenda. EN

13.1.2 Establish seed saver networks and village seed banks for traditional seed varieties.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

In 2016-2017, a total of (313) seed banks of five crops (peanut, greengram, chick pea, blackgram, pigeon pea) have been established at 59 townships from five regions (Sagaing, Magwe, Mandalay, Bago, Ayeyarwaddy). These are managed as community seed banks together with seed multiplication system of IFAD (International Funds for Agriculture Development) project. EN

National Target(s)

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

A large number of seed banks has been established.	EN

Obstacles and scientific and technical needs related to the measure taken

Capacity and time are the key obstacles.	EN

13.1.3 Conduct collaborative research between MAg. and farmer organisations, extension agents, and farmer field schools for documentation and breeding of traditional crop varieties

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The MAg. conducts annual collections of crop seeds and wild relatives for both research and preservation. The following research initiatives are being carried out: a) Exploration and collection of plant genetic resources (PGRs), b) Characterization, evaluation and identification of traits for biotic and abiotic stress tolerance, c) Research on ex situ cold storage conservation of crop germplasm, d) Establishment of an agroforestry programme for conserving neglected and underused plant species (NUS), and e) Field conservation of vegetatively propagated crop species, The characterization, pre-breeding, multiplication and regeneration activities are routine research objectives of the National Seed Bank. Training programs on crop genetic resources management are being carried out at the Seed Bank, through work directly with farmer organisations on an annual basis. Ex situ conservation sites have been established for: 1) Medicinal orchids, banana (Plant Biotechnology Center, Department of Agriculture (DOA), Yangon). 2) Banana, potato, orchid, lily, aloe, strawberry, pine apple, blackberry, resberry, elephant foot yam, patain-manaing (Globba species) and chrysanthemum (Vegetable and Fruit Research and Development Center (VFRDC), DOA, Hlegu). 3) Indigenous orchids (Dendrobium densiflorum, Dendrobium farmer,	EN

Dendrobium parishii, Dendrobium nobile, Dendrobium pulchellum, Vanda coerulea, Rhyncostylis retusa) (Mingalardon Farm ,DOA, Mingaladon)
4) Medicinal orchids (Cymbidium spp., Dendrobium fimbriatum, Dendrobium nobile, Dendrobium aphyllum, Dendrobium morchatum), strawberry (Doekwin Farm, DOA, Pyin Oo Lwin).

Department of Agriculture, Horticulture and Plant Biotechnology Division conducted research on traditional crop varieties were as followed.
(1) rice, mango, maize, pea, medicinal orchid and banana (Plant Biotechnology Center, Department of Agriculture (DOA), Yangon).
(2) banana, potato, pine apple, orchid, taro, elephant foot yam, anthurium, strawberry, blackberry, raspberry, aloe, papaya, lily, dragon fruit, pa tain ma naing, bread fruit, okra, pumpkin, chili, aubergine (egg plant), tomato, water melon, musk melon, cucumber, snake gourd, bottle gourd, luffa, maize, long bean, soybean, black gram, lime, mango, guava, pumelo, plum, orange, sweet potato (Vegetable and Fruit Research and Development Center (VFRDC), DOA, Hlegu).
(3) indigenous orchids (Dendrobium densiflorum, Dendrobium farmer, Dendrobium parishii, Dendrobium nobile, Dendrobium pulchellum, Vanda coerulea, Rhyncostylis retusa) (Mingalardon Farm ,DOA, Mingaladon)
(4) medicinal orchids(Cymbidium spp., Dendrobium fimbriatum, Dendrobium nobile, Dendrobium aphyllum, Dendrobium morchatum), strawberry (Doekwin Farm, DOA, Pyin Oo Lwin).
(5) Mango varieties (Sein Ta Lone, Shwe Hhin Thar, Mya Kyat, Tha La Phet, Yin Kywe, Thone Hnit Thee, Bote Sone, Chat Su, Sein Sar, Bo Ma, Wet Si, Pan Swe Hteike Ni, Yaw Khauk, Oo Shwe Ngo, Thone Lone Ta Htoung, Oo Shwe Wyne, Kan Kywin, Khong Choe, Man Kone Si, Nam-Dok-Mai Gold, Shwe Ni) Yat Thit Farm.
(6) Soybean (Kyawe Bote Farm).
(7) Rose, Sein Ta Lone/solitary diamond Mango (Nan Shae Farm).
(8) Dragon fruit, pumelo, longan, bitter gourd, aubergine, cabbage, cauliflower, pumpkin, carrot (Htone Bo Farm).
(9) Mango (Pa da Myar Nga Mauk/ ruby Nga Mauk, Sensation, R2E2, Cho Sa Wai, Sein Cho, Nam-Dok-Mai), grape vine (Miketilar farm).
(10) Mango (Sein Ta Lone), grape vine, dragon fruit (Sé Pauk Farm).
(11) Mango (Sein Ta Lone) (Mya Na Di Farm).
(12) Pumelo (In Ga Po Farm).
(13) Durian (Kyone Ka Farm).
(14) Durian (Kan Ka Lay Farm).

(15) Durian, rambuton, pine apple (Ah Zin Farm).
(16) Guava, pomeranate (Kan Thar Yar Farm).
(17) Medicinal orchids (Shwe Nant Thar, Balar Farm).
(18) Tea (Pin Laung Farm).
(19) Potato, China water chestnut (He Ho Farm).

National Target(s)

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Research, especially genetic research, requires a long-term time horizon. The work done by the National Seed Bank has been ongoing for several years resulting in internal reports and scientific publications suggesting considerable success. There is also a large and ongoing research program on indigenous species. See also publications under Measure 13.2.2 below.	EN

Relevant websites, links, and files

Rice gene variation 2016
Hybrid rice development
Bacterial wilt
DNA markers for rice types

Obstacles and scientific and technical needs related to the measure taken

As for any research agenda, funding is the main obstacle. Regardless, numerous collaborations with IGOs and universities have advanced the crop genetics work in Myanmar.	EN

13.1.4 Ensure that the intellectual property rights for traditional, crop varieties are recognized and protected through implementation of the Nagoya Protocol and in the national legislative framework for seeds and intellectual property

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Nagoya Protocol has not yet been fully implemented in Myanmar. However, the Nagoya Protocol on genetic resources access and benefit-sharing (ABS) is in part being implemented by using Standard Material Transfer Agreements (SMTA) for mobilizing of the resources. The Seed Bank distributes genetic materials as a provider and the collecting missions, plant breeders, researchers, students, etc., who request the germplasm are the recipients.	EN

National Target(s)

13.1 By 2020, priorities for the conservation of plant genetic resources have been

identified and are addressed by programmes to promote in situ conservation.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Standard Material Agreements are being used by the MAg, Seed Bank. Other aspects of the Nagoya Protocol are covered under Target 16.1. EN

Obstacles and scientific and technical needs related to the measure taken

See 16.1 EN

13.1.5 Encourage incentives and programmes to promote farm conservation of plant genetic diversity

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Researchers from seed banks regularly speak to farmers about how to conserve gene diversity in crop species. For ongoing programs, MoALI has a specific border development programs which encourage on-farm conservation of genes, for a variety of crop and tree crop species in 6 states and regions; substitution of opium crop and raising youth programs, which encourage on-farm conservation of genes a 6 farms in 2 states; and the Horticulture and Plant Biotechnology Division, Department of Agriculture conducted on-farm conservation of genes at 15 farms for fruits and vegetables. EN

National Target(s)

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There is a clear recognition of the importance of gene conservation through a wide range of programs. EN

Obstacles and scientific and technical needs related to the measure taken

Funding and capacity to develop programs on a large number of farms. EN

13.2.1 Establish a programme of collaborative research and collection of biological material with seed networks, farmer organisations, village seed banks, and farmer field schools.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The MAg. Research Section and Seed Bank collaborates with several international institutions: Universities in Japan (Tokyo University of Agriculture, Tsukuba University and Seed Bank, Kyushu University, and Nagoya University). MAg. Research and Seed Bank also works directly with International organizations, including IPGRI (BI), FAO, CBD (Cartagena Protocol, Nagoya Protocol), and Banana MusaNet. (See 13.2.3 below)	EN

National Target(s)

13.2 By 2020, ex situ conservation gaps have been addressed through collaborative research and collection programmes

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Some of these collaborations have been long-term resulting in publications, application of new science to seed bank work, and improved gene preservation techniques (see publications under 13.1.1).	EN

Obstacles and scientific and technical needs related to the measure taken

As with any research agenda, funding is the major limitation.	EN

13.2.2 Collect accessions from crops and regions for the National Seed Bank that have been identified as priorities in national gap analysis

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Data are provided on accessions to the national and international seed banks by species and crop type (see table attached). In addition, there are research projects to maintain field conservation and in situ gene conservation of vegetatively cropped species, including mango, banana, and yam. In addition, Worldview Myanmar Limited (WML) is working with the Department of Forestry to help in the conservation of potentially endangered orchid species through seed collection for the world seed-bank in Norway.	EN

National Target(s)

13.2 By 2020, ex situ conservation gaps have been addressed through collaborative research and collection programmes

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The accompanying table and publications illustrate the large national and international collection of seed types. Further, as a result of the programme with FAO on underused species and collaborations with international universities, this collection has been expanded to especially include new varieties.	EN

Relevant websites, links, and files

Tables for Measure 13.2.2.docx (Seed collection data)
Value of seed collections to science
Seed collections from remote villages
Characterization of Myanmar Paw San Hmwe Accessions Using Functional Genetic Markers.pdf

Obstacles and scientific and technical needs related to the measure taken

Funding	EN

13.2.3 Continue to expand collaboration with international research institutions and to further develop research programmes with national universities

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Seed Bank has at least 9 separate international collaborations for seed conservation and study with: Bioversity, ITGRFA, FAO, gene banks in Philippines, Norway, Korea, Japan, and work with universities in Japan. (see 13.1.1). The Agricultural Research Department (DAR) collaborates at the international level with with Biodiversity International, ITPGRFA, Regional FAO, International gene banks (IRRI genebank in Philippines, Korea genebank, Svalberg Global Seed Vault in Norway, Tsukuba genebank in Japan, Tokyo, Tsukuba, Kyushu, Nagoya universities in Japan), YAU, DOA, Botany and Biotechnology Departments of some universities in country.	EN

National Target(s)

13.2 By 2020, ex situ conservation gaps have been addressed through collaborative

research and collection programmes

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

There are numerous international and internal research collaborations. EN

Other relevant information

See publications under 13.1.1 and 13.1.2 EN

Obstacles and scientific and technical needs related to the measure taken

Funding is the main obstacle. EN

13.2.4 Upgrade the national seed bank to enable cryopreservation techniques.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

No progress EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

Funding is the main obstacle. EN

13.3.1 Number of centres of crop wild relative diversity identified and 13.3.2 Develop and action plan for crop wild relatives

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

No work has been done but this will be developed as a part of the new programme with FAO on underused species. EN

National Target(s)

13.3 By 2020, a crop wild relative action plan has been initiated

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The field component for the joint research programme has not yet begun. EN

Obstacles and scientific and technical needs related to the measure taken

There are no obstacles to this programme at present. EN

13.4.1 Conduct collaborative research to identify priorities and opportunities for conservation of genetic diversity of livestock including semi-domesticated animals like Mithun, including preservation of tissue samples, both in situ and ex situ

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

There is an ongoing program for Mithun breed improvement that includes the conservation of natural habitat of Mithuns, research on Mithun health, cultivation of the main natural Mithun foods, conservation of other biodiversity in the same areas, and community mobilization for a participatory approach.

A search on Google scholar for livestock genetic research produced >230 articles published in journals from 2015-18. These papers dealt with cattle, mithun cattle, goats, chickens, and other livestock. However, screening further revealed a very few dealt specifically with Myanmar and none covered tissue preservation. EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There are only a few studies specifically within Myanmar and none has covered tissue preservation. EN

Relevant websites, links, and files

Goat genetics
Goat genetics (2)
Cattle genetics

Obstacles and scientific and technical needs related to the measure taken

Funding. EN

14.1.1 Quantify trends and pressures in the status of ecosystems and species populations that provide key ecosystem services, including distinct ecological and hydrological units such as the Ayeyawady River Basin

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Most emphasis on this target pertains to river systems with major studies in some key river basins. Reasons for forest loss, including in mangroves, are documented under targets 5, 7, and 15 with referenced materials. For forests there is some mapping of specific areas of interest using satellite imagery (see map attached for Taninthayi area). Marine systems are discussed under Targets 6 and 12 including a map illustrating ocean impacts. However, no single report examining changes in ecosystem services associated with all of these ecosystems has been assembled. The IBAT website provides a list of pressures on species, which in fact is a list of pressures on ecosystems as well (see graph attached). There are very large and well-funded river basin and water quality studies currently ongoing in Myanmar, through MONREC, partnered with multiple international donors. The Swedish Environmental Institute (SEI) is working with the Directorate of Water Resources and Improvement of River Systems (DWIR) and Myanmar Environment Institute (MEI) to build on its continuing work on environmental issues in Myanmar, especially on the Ayeyawady and Chindwin Rivers. On those two rivers, water quality has been monitored since 2000 at 52 stations. The Chindwin project is to build capacity of civil society and government agencies in assessing potential impacts of development and climate change on biodiversity and ecosystem services and on livelihoods. JICA has a project to monitor pollution in the Hlaing River at Yangon with a view to reducing pressures on that river basin. A project entitled "Myanmar Healthy Rivers Initiative", conducted by a consortium of NGOs (such as International Water Management Institute), an IGO, and Australian foreign aid is developing an assessment of major river basins (including the Ayeyawady) to document problems (pollution, flows, erosion, etc.) and improve water quality and river basin management. World Wildlife Fund with World Bank has also begun a study on the role that the services provided by the Ayeyawady River plays in the economy of Myanmar. Lee et al. (2018) studied and classified aquatic habitat along the Ayeyawady River, and provided data on several avian EN

species and quantified habitat losses along the river. Their data showed declines in 22 of 36 waterbird species over a more than 10 year period. In 2015, the Delta Alliance, part of the BOBLME Project, published a report (see attached link) quantifying the important role of the Ayeyawady Delta to people of Myanmar. The Norwegian Institute for Water Research produced a recent report recommending guidelines for water quality and monitoring programme for lakes and rivers in Myanmar (see link).

Conclusions from the Chindwin River study show that: there are elevated levels of heavy metal contamination from mercury, copper and arsenic, which pose serious health risks to people and the river ecosystem, particularly in the Uru River, a tributary of the Chindwin; mining operations for gold, jade and copper are leading to heavy metal contamination of the river; and a major constraint to effective water quality monitoring is the number of different government bodies currently tasked with water quality monitoring, with limited integration of expertise and knowledge sharing arrangements.

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There is no summary yet of pressures on ecosystems. The work on the Ayeyarwady and other rivers is still ongoing and results have not yet been transformed into better management planning and practices.

EN

Relevant websites, links, and files

Chindwin River video
Chindwin Biodiversity_Project Summary_June 2017.docx
BOBLME water quality monitoring.pdf (Bay of Bengal Project)
watersolutions_01_2016-4.pdf (National Water Framework)
JICA project Hlaing River
Study on Ayeyarwady ecosystem services in Myanmar, Taft and Evers, 2016
BOBLME and Delta Alliance report on the Ayeyarwady Delta, 2015
Background document for the Ayeyarwady intergrated river basin project
Norwegian Inst. Water Res., Integrated water mngt in Myanmar, 2017
Ranked major causes of species declines in Myanmar.docx (From IBAT website - link on graph)
Tanintharyi forest ecosystem mapping.jpg (From Connette et al)
Chindwin River water quality information
Lee et al. 2018 Ayeyawady River habitats

Other relevant website address or attached documents

Water issues in Myanmar 2018
Stockholm Envir. Inst. partnership with Myanmar for reducing water pollution

Obstacles and scientific and technical needs related to the measure taken

Capacity (training, people) to monitor aquatic systems limit progress. The main conclusion from work on the BOBLME project is that increased focus and capacity building is necessary to have a sound management of coastal ecosystems. Too many agencies with the same water mandates and the lack of data sharing.	EN

14.1.2 Identify and map (using GIS) key ecosystem services through desktop analyses and participatory consultations involving multiple stakeholder groups, including, marginalized, poor, and vulnerable groups.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

A prerequisite to understanding ecosystem services, is to have a good understanding and classification system for the ecosystems that can be aggregated up to ecodistricts and ecoregions. Currently, WCS and IUCN, together with the University of New South Wales, has begun a consultation program to develop a typology of Myanmar ecosystems. The first iteration of this typology has identified 64 ecosystem types, and GIS mapping has been initiated. The field truthing component of the program is beginning in 2018. One workshop has been held to develop a map with ecosystem services and 3 surveys were conducted. One component of the work is to identify endangered ecosystem types. In 2016, WWF produced a report on some ecosystem services, mostly aquatic, based on a series of GIS mapping using existing data bases - see technical report attached. That mapping (see report attached at measure 2.1.1) included a 90 M digital elevation model, and mapping of sediment flow, and water flows. It identified areas at high risk of further degradation, especially under climate change. Two studies of the valuation ecosystem services, one on forests generally and the other on a specific wetland, were also reported under Target 2.1.1. Also, the Chindwin River project is using spatial ecosystem service mapping in its reports (see 14.1.1).	EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

This classification program has only recently started. However, past work from WWF, FFI, information from global databases on forests, and current mapping initiatives have greatly improved knowledge about ecosystem types in Myanmar. Case studies for valuation are reported under Target 2.1. EN

Relevant websites, links, and files

Myanmar Ecosystem Map from FAO.jpg (Large scale ecosystem map)
Myanmar FRA2015.jpg (Forest typing 2015 large scale)
Myanmar_national_natural_capital_assessment_technical_report_2016_06_06 (1).pdf (Data for ecosystem evaluation, WWF)
Large-scale ecosystem types Myanmar_ from_ Mandle et al. 2017.PNG
Ecosystem services under climate change; Mandle et al. 2017
Aquatic ecosystem services map and climate change_from_Mandle et al 2017.PNG

Obstacles and scientific and technical needs related to the measure taken

Lack of capacity to incorporate information into spatial mapping, lack of spatial information, and a general lack of capacity has hindered a small-scale ecosystem mapping program. The new joint effort will improve both the mapping and the ability to assign ecosystem services. EN

15.1.1 Amend the Forest Law to strengthen the legal framework for community forestry and increase incentives for community management

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The new Forest Law was enacted on 19 September 2018, and consists of provisions related to enabling community forestry. More detailed regulations will be put in new Forest Rule that is under preparation. EN

National Target(s)

15.1 By 2020, over 130,000 hectares of forest have been placed under community forestry

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The new law is in place. EN

Obstacles and scientific and technical needs related to the measure taken

There are no obstacles to amending the law, but regardless, the target has already been met - see measure 15.1.2 below.	EN

15.1.2 Launch a major new initiative to significantly upscale community forestry, building on the lessons and experiences to date

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Community forestry has become an important part of Myanmar's overall strategy to reduce forest loss, enhance ecosystem resilience and to enhance carbon storage. The Forest Department as well as several organisations, including FAO, Flora and Fauna International, Biodiversity and Nature Conservation Association, WWF, RECOFTC, and the Women's Platform for Community User groups, are all engaged in establishing and/or training community forest (CF) groups. Flora and Fauna International has 7 CFs submitted for certification and 6 village conservation groups and conducted training 190 people with several manuals for CF operations and silviculture. FAO under the Forest and Farm Facility (FFF) Programme has formed 113 CFs covering 9000 ha, and has provided 50 training sessions to its 6500 members. WWF worked with an additional 7 CFs established covering around 7,000 hectares. Biodiversity and Nature Conservation Association worked with a local CF in the Gulf of Mottama to establish a tree nursery especially for fuelwood species. In total Flora and Fauna International (FFI) estimates that about 15,000 people are benefitting from the CF program, of which half are women. Flora and Fauna International is working with Myanmar Forest Certification Committee – who work with FLEGT - developing timber legality assurance system. In the Kachin area, 32 people were trained in community forestry processes. In Gwa Township, Rakhine State, Norway has funded the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC – The Centre for People and Forests) to assist 19 villages on 5600 ha to develop community forests and use some as demonstration areas. This project also aims to increase the CF area by 40,000 ha in about 100 additional community forests. RECOFTC has been working to assist CFs for more than a decade and has continued to be actively involved in training and elevating the participation of women (see case study below). FAO, in cooperation with the Myanmar Environment Rehabilitation-Conservation Network (MERN) and the Forest Department held their second training course on "Sustainable Timber Production and Value Chain Creation" for 31 members of Community Forestry User Groups from Kachin State (8), Sagaing Region (8), Mandalay Region (6), Shan State (3) Rakhine State and Bago Region (2 each), Chin State and Yangon Region (1 each) (among the 31 attending, 5 were women). Overall, Forest Department indicates	EN

that 211,397 ha are under community forest management in 2018, by 3884 user groups, with 103,907 members. The total area covered by community forests (although not all certified yet) is >230,000 ha as reported by Forest Department, represents an increase of 131,397 ha since 2014, exceeding the NBSAP target of 130,000 ha. JICA will begin a project at Inle Lake to work with community groups to ensure watershed protection, in part, by working with community forest management.

As an important step to support the ecosystem conservation of Myanmar's Southern Coastal Zone, FAO has initiated with the Dept. of Fisheries the formulation process of a GEF funded project: "My-Coast: Ecosystem Based Conservation of Myanmar's Southern Coastal Zone" in 2018. Focusing primarily on the Taninthayi Region and the Myeik Archipelago, the project will support within fisheries and forestry communities to improve local management of the precious coastal and marine in the area. The MyCoast Project is intended to bring improved conservation of hundreds of thousands ha of mangroves, seagrass, and other coastal zone resources.

National Target(s)

15.1 By 2020, over 130,000 hectares of forest have been placed under community forestry

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The target has been exceeded and considerable training has been provided, and continues to be provided. Some groups have received certification. Data show that CFs are significantly reducing poverty levels (see report by Feurer et al. attached). There is ongoing work by many groups to increase the area covered by CFs and to improve the capacity of the user groups to manage these forests well. EN

Relevant websites, links, and files

Tree seedling Interm Report-KNCF-BANCA.pdf (CF nursery)
TCP Report 46, Tanintharyi CF Assesssment (Dec 2016).pdf (FFI CF report)
Working Paper 06, Field Manual for CF Forest User Groups (Apr 2015) .pdf (FFI example of training manual)
The Centre for People and Forests (RECOFTC)
CFs value Fuerer et al 2018.pdf

Other relevant information

RECOFTC has been working in the Magway area to ensure women's participation in CF decision-making (From RECOFTC, 2017: "Ensuring women's participation in EN

forest decision-making):

In the Magway region of Myanmar, women are increasing their participation in community forestry management committees as a result of taking part in participatory capacity development events. “Women usually didn’t take part in forestry management activities, and even if they did, it was typically because they felt they didn’t have a choice,” observed Mr. Kyaw Nyunt, RECOFTC field coordinator. This was the situation that the RECOFTC project Scaling Up Community Forestry faced when the project began in Magway. “We faced many challenges in the beginning, including the need to raise basic awareness about what is community forestry for both female and male members, and most importantly, to build trustful relationships,” said Mr. Kyaw Nyunt. To meet this challenge, RECOFTC, in conjunction with the local-level Forestry Department and Future Light Youth Development Organization (FLYDO), a local civil society organization, began raising awareness about community forestry and its benefits in terms of sustainable livelihoods among women and men community members through a series of participatory training and discussions. The inclusion of women representation from the community was always ensured in the discussions and training. “I witnessed more and more local women becoming interested in getting involved in forestry through taking part in trainings on forest plantations, managing natural forests, agro-forestry and financial management,” said Mr. Kyaw Nyunt. Over time, more local women not only participated in training, but became involved in advisory roles in the local CF Management Committee.“It’s important for women to take on these roles in forest management because women are active in using forests and have a sense of ownership to forests. They are also more present in the villages (they typically migrate less often than men),” said a trainer from FLYDO. “Women are now becoming highly capable leaders, and using their skills to systematically record and effectively convey forest-related information,” the trainer added. Currently, local communities are developing a CF Management Plan, with local women actively advising and sharing responsibilities in forest boundary planning and financial management. Altogether there are 530 Community Forest Users (CFUs), comprised of 415 males and 115 women in 11 villages. Among them, the CF management committee members comprise of 75 people, with women representation in 8 villages elected by the CFUs to take on roles as accountants and/ or secretaries with equal footing in sharing opinions over discussion and decision-making. “There is now a shared understanding among both men and women in these communities that community forestry can contribute to making a real positive change for many people,” said Mr. Kyaw Nyunt.

Obstacles and scientific and technical needs related to the measure taken

A key obstacle is time and capacity to train members of the many CFs, but also the time and process to certify CFs has been flagged as an issue by several of the groups working with CF user groups. An important change will come with the new

EN

forest law that will enable clarification of tenure for CFs.

15.2.1 Draft and adopt a national forest restoration strategy

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

In 2016, the government launched a 10-year Myanmar Reforestation and Rehabilitation Program (MRRP), aimed at not only restoring degraded and deforested landscapes, but also improving economic and environmental conditions of local communities.

This very ambitious reforestation and restoration project, the "Myanmar Reforestation and Restoration Programme (MRRP)" was launched in 2017 with targets to be achieved over the 10 years of implementation:

- Assisted Natural Regeneration: 818,538 acres
- Natural Regeneration 500,000 acres
- Enrichment planting 147,270 acres
- Commercial plantations 162,900 acres
- Watershed plantations 34,585 acres
- Mangrove plantations 29,690 acres
- Village supply plantations 104,563 acres
- Private plantations 285,104 acres

The total budget of the MRRP is around USD 460 million.

EN

National Target(s)

15.2 By 2018, guidelines for a national forest restoration programme that incorporates best international practice formally adopted by government and pilot project initiated

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The strategy has been published. See 15.2.2 for details.

EN

15.2.2 Implement pilot forest restoration projects

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

In 2016, the government launched a 10-year Myanmar Reforestation and Rehabilitation Program (MRRP), aimed at not only restoring degraded and deforested landscapes, but also improving economic and environmental conditions of local communities. This program is associated with the large GEF-funded forest restoration project: “The Restoration Initiative (TRI) Myanmar, Reversing Forest Degradation and Deforestation and Restoring Forested Landscape through Local Multi-stakeholder Management” announced in 2016. The government’s project is planned to cover some 32,300-40,500 ha/year, including establishing forests and local residents will develop forests on 283,000 ha, including in community and private plantations. Of the area to be reforested, about 30,000 ha are mangrove, the vast majority of which is planned for the Ayeyawady delta. In 2017, the Forest Department, supported by IUCN and The Nature Conservancy, conducted a multi-criteria spatial analysis which identified opportunities for restoration. This mapping process allowed the stakeholders to analyse and determine where restoration actions could generate multiple benefits in terms of reversing forest loss, conserving Myanmar’s important biodiversity, ecosystem services recovery, and with socioeconomic success. The next steps in this process include fine-tuning the restoration areas map, field investigation and the subsequent creation of pilot projects in Sagaing Region to demonstrate the application and benefits of forest landscape restoration. PROFOR is also providing an assessment of the national restoration program with a view to improving information and decision-support systems to support program planning, implementation, and monitoring and evaluation. A 10-year Habitat Restoration Programme (2018 to 2028) is being prepared based on the habitat restoration plan (2018 to 2028) of 19 protected areas with the aim of restoring degraded ecosystems and species and of strengthening protection on existing ecosystems and species. Biodiversity and Nature Conservation Association and the Forest Department established tree nurseries to work with 3 villages in the Gulf of Mottama on reforestation, especially in mangroves and bank stabilisation, and have provided training to 163 individuals on planting of trees. Flora and Fauna International is working with 15 communities at Indawgyi Lake to help with Community Forestry and agroforestry in the reserve through reforestation projects. They have instituted an efficient cookstove program and planting coppice wood species to reduce timber harvesting for fuelwood. At Taninthayi area, Flora and Fauna International has 3 projects on mangroves management and recovery, one with UNDP through GEF (Mainmala Kyun and Bogalay in the Delta area), and Flora and Fauna International has provided training in mangrove co-management and inventory to 91 people, among whom about 30% were women. Worldview Myanmar Limited (WML) has a project in part to establish mangrove plantations through a series of Mangrove parks with Pathien and Myiek Universities to help	EN

restore and protect the mangrove forests through demonstration and research.

National Target(s)

15.1 By 2020, over 130,000 hectares of forest have been placed under community forestry
15.2 By 2018, guidelines for a national forest restoration programme that incorporates best international practice formally adopted by government and pilot project initiated

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The project has only recently been initiated, but is well funded and has a clear set of objectives, some of which, such as the map, have been achieved. EN

Relevant websites, links, and files

Forest restoration plan by 2030.jpg
Myanmar forest restoration potential.jpg (IUCN)

Obstacles and scientific and technical needs related to the measure taken

Sufficient capacity and funding to work on forest restoration, especially in mangroves, is the main obstacle. Sufficient knowledge is not an obstacle. EN

15.2.3 Explore opportunities for sustainable funding of restoration through REDD+ and establishment of other payments for ecosystem services

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The REDD+ Programme has been established with a completed roadmap (see 15.3.1). Several other restoration programs, specifically for mangroves have already been implemented (see 15.2.4) or are planned. The REDD+ Programme will be linked into the Myanmar Reforestation Programme (see above) EN

National Target(s)

15.2 By 2018, guidelines for a national forest restoration programme that incorporates best international practice formally adopted by government and pilot project initiated

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

REDD+ and other programs are active although little forest has yet been restored. EN

Obstacles and scientific and technical needs related to the measure taken

Obstacles have been related to negotiations with local communities as well as the lengthy REDD process. EN

15.2.4 Prepare guidelines for national forest restoration programme taking into consideration economic, including the value of ecosystem services, and ecological aspects.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Department of Agricultural Research with Yezin University of Nay Pyi Taw are developing an Agroforestry Model under supervision of the Seed Bank. IUCN provided a training session on general issues surrounding restoration projects to protected areas staff in 2017 (see attached meeting summary). Also, training has been provided to local areas for reforesting mangrove forests (FFI - attached). Technical assistance by Forest Department staff to CFs is provided for reforesting, but no national-level guidelines are available. EN

National Target(s)

15.2 By 2018, guidelines for a national forest restoration programme that incorporates best international practice formally adopted by government and pilot project initiated

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

This is a recent measure for which there are no results as yet. EN

Relevant websites, links, and files

Restoration in PA training IUCN 2017.pdf
Mangrove restoration pj 2012-15.pdf (Worldview International)

Obstacles and scientific and technical needs related to the measure taken

Unknown. EN

15.3.1 Continue to implement the REDD+ Readiness Road Map especially development of standards, and pilot project.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The roadmap is completed and is in the process of being implemented. The roadmap has 6 key components 1. Management of REDD+_ readiness; 2. Stakeholder consultation and participation; 3. Development and selection of REDD+ strategies; 4. Implementation framework and safeguards; 5. Developing a national FREL or RL; and 6. Development of a national forest monitoring system. Some components are complete while other are ongoing. For example, the FAO is involved in strengthening Myanmar National Forest Monitoring System and Korean Forest Service is helping to building of relevant stakeholders for REDD+ readiness of Myanmar. However, key components of the roadmap have not been implemented, including the FREL, safeguard system, and selection of strategies. The draft REDD+ Strategy is undergoing a comprehensive consultation process. Myanmar's first FREL was submitted to the UNFCCC in January 2018, and the technical assessment process is nearly complete. The first draft of the design of that Safeguard Information System is due by the end of 2018.	EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The road map is being implemented but some aspects such safeguards are accomplished. Some components, however, such as the National Strategy and Safeguards Information System are expected to be complete by 2019.	EN

Relevant websites, links, and files

Myanmar REDD roadmap
Myanmar FREL

Obstacles and scientific and technical needs related to the measure taken

Financing and capacity	EN

16.1.1 Develop a National ABS Roadmap and Action Plan, which identifies the most relevant genetic resources, assesses the likely demand for these, and identifies the priorities for legislative development, awareness raising, and capacity development.

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Implementation of the Nagoya Protocol has been delayed until after 2020, however as of 2017, in cooperation with United Nations Development Programme (UNDP), the project “Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol” is being implemented. As a part of that project, a report on traditional knowledge of genetic resources is under review. That report will assess traditional knowledge of genetic resources currently being applied, suggest legislation to be enacted and recommendations for how Myanmar should move forward. Also, the UN Environment Program and the Ministry of Natural Resources and Environmental Conservation (MoNREC) are working together to apply for GEF funding to implement the Project called “Implementing Nagoya Protocol of Myanmar by Promoting the Policy for Utilization of Genetic Resources and Associated Traditional Knowledge and Benefit Sharing”. Preparations are being made to establish Competent National Authority (CNA) to implement Nagoya Protocol. Only after establishing a CNA, can the Nagoya Protocol can be implemented step by step. The Global ABS Project “Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol” specifically aims at assisting countries in the development and strengthening of their national ABS frameworks, human resources, and administrative capacities to implement the Nagoya Protocol. The implementation of the project was starting from 2017 to 2019 about 3 year’s duration. Specific country-level activities shall be conducted with three objectives; I. To strengthen the legal, policy, and institutional capacity to develop national ABS frameworks; II. To build trust between users and providers of genetic resources to facilitate the identification of bio-discovery efforts: III. To strengthen the capacity of indigenous and local communities to contribute to the implementation of the Nagoya Protocol.	EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

One component of the Protocol has been implemented (see 16.1.2), but with the funded projects now being implemented and pursued, the protocol has a high likelihood of being implemented soon after 2020.	EN

Obstacles and scientific and technical needs related to the measure taken

Time to inform and negotiate with stakeholders, as well as to develop scenarios for impacts of the protocol in Myanmar.	EN

16.1.2 Establish the Nagoya Protocol in the national legal framework

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Department of Agriculture has implemented the SMTA component of the protocol during all seed collections and research. A gap analysis with respect to laws and policies needed has been completed To establish the Nagoya Protocol within the national legal framework, discussions and workshops will be organized with relevant ministries, departments, organizations and NGO/INGO.	EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

There has been progress in terms of the gap analysis, implementation of the SMTA and with planning for stakeholder workshops.	EN

Obstacles and scientific and technical needs related to the measure taken

Funding has been one of the key impediments, but also trying to understand how the NP can be implemented among a wide range of ethnic groups has led to delays.	EN

16.1.3 Raise awareness among selected stakeholder groups within government, the private sector, international and national NGOs, and communities about the implications of the Nagoya Protocol.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

So far, there have been no formal workshops or training sessions, but during exploration and collection trips, the Agriculture Seed Bank raises awareness of local communities on the importance of PGRs and for genetic resources access and benefit-sharing on an ad hoc basis. Training on Free and Prior Informed Consent (FPIC) was provided by WWF for leaders from 9 communities, with 18 participants, including 4 women.	EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Little formal training has been provided yet. EN

Obstacles and scientific and technical needs related to the measure taken

Funding and sufficient time to meet with all stakeholders have been the key impediments. EN

16.1.4 Strengthen and continue the National Information Sharing Mechanism (NISM) and Global Plan of Action (GPA).

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Training on the NISM and GPA in collaboration with Regional ITPGRFA training , with assistance from FAO has been conducted among staff from different states and regions. EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The work is in progress and no results are known. EN

Obstacles and scientific and technical needs related to the measure taken

Time and capacity to provide training. EN

16.1.5 Conduct collaborative research on medicinal plants and crops and TK of these resources under the framework of the Nagoya Protocol.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Although not specifically with regards to the Nagoya Protocol, several studies and publications on traditional medicines have been published. See 13.1.1 EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Traditional medicines and TK have been documented in two major research publications. EN

Other relevant information

See 13.1.1 EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

16.1.6 Build capacity among stakeholders to implement the provisions of the Nagoya Protocol through the provision of targetted training and the development of model ABS agreements

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

Unknown EN

16.1.7 Translate The Guide to the Nagoya Protocol and other key references into Myanmar language.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Biodiversity Convention, Nagoya Protocol, Access and Benefit Sharing (ABS), Good Practice Guide for Using and Implementing Genetic Resources and Bonn Guidelines have all been translated into Myanmar language. EN

National Target(s)

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Several key publications including the NP have been translated - target met. EN

Obstacles and scientific and technical needs related to the measure taken

Target met - no obstacles. EN

17.1.1 Prepare the necessary briefing papers and formally submit the NBSAP to Cabinet for approval

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Policy brief in Myanmar and English languages for NBSAP 2015-2020 was prepared and disseminated. EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Parliamentarians are aware of the NBSAP and recently passed the Protected Areas and Biodiversity Law. EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

17.2.1 Establish a National Steering Committee, to oversee and guide the implementation of the NBSAP.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

National Biodiversity Conservation Committee (NBCC) was formed on 28 February 2017, with notification no. 31/2017. EN

National Target(s)

17.2 By 2016, the institutional mechanisms to ensure effective implementation and monitoring of the NBSAP are in place and functioning effectively

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The revised NBSAP is being implemented so far as has been possible since 2014. The evidence is the large body of information indicated in this report. EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

17.2.2 Create an NBSAP Implementation Coordination Unit within MOECAF and develop a mainstreaming and coordination strategy that recommends clear roles and responsibilities across national policy framework

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The NBCC (see 17.2.1) is the interdepartmental body, which has working groups that vary with membership among the Departments as required by expertise and subject area. EN

National Target(s)

17.2 By 2016, the institutional mechanisms to ensure effective implementation and monitoring of the NBSAP are in place and functioning effectively

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There are no data with which to assess the effectiveness of this committee or its' subcommittees, or if strategy is in place. EN

Obstacles and scientific and technical needs related to the measure taken

None. EN

17.3.1 and 17.3.2 Develop guidelines for BSAP preparation and develop BSAPs in at least 3 states.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No work done yet EN

National Target(s)

17.3 By 2020, BSAPs are under preparation in at least three states/regions.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Nothing done. EN

17.4.1 and 17.4.2 Develop a communications plan for key audiences and a series of high-level briefing packages on the NBSAP for senior policy and decision makers within government.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

A policy brief in Myanmar and English languages for the NBSAP 2015-2020 was prepared and disseminated. In 2015, a national meeting on application of the NBSAP was held in Nay Pyi Taw. Communications tools were developed and disseminated (see attached for examples). EN

National Target(s)

17.4 There is an improved national awareness of the NBSAP as a result of the application of a communications plan

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The effectiveness is indicated by the presence of numerous references to the NBSAP in the new high-level government planning for sustainable development (documents unavailable yet). The NBSAP has provided guidance and policy justification for the implementation of many programs currently being conducted by government and NGO in Myanmar. EN

Relevant websites, links, and files

NBSAP flyer english.pdf
Myanmar NBSAP flyer FINAL March 2016_Burmese.pdf

Obstacles and scientific and technical needs related to the measure taken

None. EN

18.1.1 Develop a National Land Use Policy and Pass a Land Law that recognizes customary land use systems

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

The Myanmar Land Use Policy recognizes customary land use tenure system. A new Land Law, based on the policy statement, is currently being written. EN

National Target(s)

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

The policy is complete and a new law is being written. Application of the law and policy will be apparent only over time. EN

Relevant websites, links, and files

Myanmar Land Use Policy 2016

Obstacles and scientific and technical needs related to the measure taken

None. EN

18.1.2 Develop implementing rules and regulations to allow registration of customary tenure.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

A new Land Law is under preparation and customary tenure will be partly included. In the “Conservation of Biodiversity and Protected Areas Law” 2018, there are sections that support the legal recognition of customary land use tenure. EN

National Target(s)

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Incomplete at this time. EN

18.1.3 Harmonize recognition of customary and communal tenure into relevant laws, dispute resolution mechanisms, and land use planning processes

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

A new Land Law is under preparation and customary tenure will be partly included. In the “Conservation of Biodiversity and Protected Areas Law” 2018, there are sections that support the legal recognition of customary land use tenure. EN

National Target(s)

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The laws and policies are new and results will only become apparent with time. EN

Obstacles and scientific and technical needs related to the measure taken

Time to pass laws and create policies are the main obstacles. EN

18.1.4 Begin to register communal land

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Where community forests and community fisheries have been established, these lands are registered. EN

National Target(s)

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

Establishing community user groups requires clear land areas. EN

18.2.1 Prepare guidelines on FPIC for government use, including guidelines on consultation processes

National Target(s)

18.2 By 2020, FPIC principles are institutionalized in government, private sector, and donor programmes

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Guidelines not prepared yet. EN

Obstacles and scientific and technical needs related to the measure taken

None EN

18.2.2 Ministries overseeing sectors, particularly extractive industries with significant impacts on indigenous peoples and local communities affirm FPIC principles.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

18.3 By 2020, traditional knowledge documented, recognized, promoted, and protected through incorporation into education and conservation outreach education

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

18.2.3 Produce and disseminate guidelines for FPIC and grievance mechanisms to government and private sector

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

In preparation. EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

Guidelines are still being prepared. EN

18.2.4 Train relevant government staff on FPIC principles and consultation methods to

increase awareness and capacity

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Staff training on FPIC has been ongoing since 2014, in-house and through RECOFTC EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

There are no data with which to assess effectiveness. EN

Relevant websites, links, and files

REDD+ FPIC training
FPIC Booklet(Q&A)_Myanmar.compressed.pdf (RCOFTC FPIC - in Myanmar language)

Obstacles and scientific and technical needs related to the measure taken

None EN

18.3.1 Incorporate traditional knowledge, practices, and beliefs into protected area education materials

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

In April 2018, Forest Department, WCS and the International Centre for Integrated Mountain Development (ICIMOD) conducted a survey on traditional knowledge on plant diversity, use and management in Northern Myanmar. The results will be integrated in community development planning. EN

National Target(s)

18.3 By 2020, traditional knowledge documented, recognized, promoted, and protected through incorporation into education and conservation outreach education

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

The survey was recently completed and materials have not been published. EN

Obstacles and scientific and technical needs related to the measure taken

Time, capacity and funding limit this work. EN

18.3.2 Develop educational materials on TK practices and beliefs from university coursework on forestry and conservation

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress. EN

National Target(s)

18.3 By 2020, traditional knowledge documented, recognized, promoted, and protected through incorporation into education and conservation outreach education

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

18.4.1 Integrate traditional ecological knowledge practice, and beliefs into PA educational materials

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

18.4.2 Promote environmental awareness and engagement for youth and women's groups

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

These specific groups are often present during usual public awareness-raising sessions. Specifically for women, about 1/3rd to 1/2 of people attending workshops and training sessions are women. Few organised women's groups are active in Myanmar. Information on these groups was included in the 'Gender Report attached at Target 14. EN

National Target(s)

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

About 1/3rd to 1/2 attendees at workshops are women, but there are few women's groups in Myanmar to work with. EN

19.1.1 Establish a CHM portal with relevant information

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

19.1 By 2016, a CHM web portal is established

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

None specified EN

19.2.1 Finalize national forest cover database and make available publicly online.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Myanmar has a national forest cover database and is in the process of updating the information, jointly with FAO once the inventory project is initiated, for the 2020 Global Forest Resources Assessment. The information will be available in 2020 and making it publicly available is expected at that time. EN

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Work is incomplete and no national forest inventory has been started. EN

Obstacles and scientific and technical needs related to the measure taken

No agreement signed with FAO yet. EN

19.2.2 Hold regular GIS training courses for relevant staff

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress EN

National Target(s)

19.2 By 2020, a national forest cover change 2015-2020 database developed using international standard methods, and made publicly available online

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

Insufficient GIS staff time available. EN

19.3.1 Establish conservation-related diploma course and advanced degree course at universities.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

The Wildlife Conservation Society (WCS) is working with the University of Forestry and Environmental Science (UFES) to strengthen the Department of Biodiversity and Wildlife Conservation. This department will offer a special course on biodiversity conservation. WCS is also supporting UFES to improve existing curricula and syllabus and provides them with reference books and field equipment. UFES graduated 382 students during 2015 to 2017, of which 84 were women. Elsewhere, WCS has organized workshops on environmental conservations at the Departments of Zoology and Botany at Taunggyi University. Curricula there are being developed for diploma courses as a short term process, in cooperation with State Department of Fisheries, to help create job opportunities for graduates and young people who have passed their matriculation examinations. Yezin Agricultural University works directly with the Seed Bank on genetic research and Mandalay University is active in assessing the status of species. Also see 10.1.2: The capacity of Mawlamyine University is being enhanced as National Centre for Marine Excellence by working together with foreign universities, local and international organizations.	EN

National Target(s)

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Two universities are active on this target with WCS and the Department of Fisheries Department is working to improve the curriculum at Mawlamyine University. Both of these efforts have been successful in moving the agenda forward, but the efforts are recent and numbers of students educated and finding jobs has not been reported.	EN

Obstacles and scientific and technical needs related to the measure taken

Funding is the one major obstacle for this agenda.	EN

19.3.2 Identify and initiate opportunities for collaboration in curriculum development, student exchange, internships, and field research programs with foreign universities and international NGOs

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Wildlife Conservation Society (WCS) provided technical and financial support for Basic Wildlife Conservation Course No. 1 running from 4 to 13 Jun 2018. In 2016 and 2017, the University of Forestry and Environmental Science (UFES) arranged field studies on biodiversity monitoring and conservation for fourth year students. A study tour on biodiversity conservation to protected areas in Thailand was organized for fourth and fifth year students and faculty members from UFES in 2017. WCS taught short courses on conservation of protected areas and biodiversity were taught in Myanmar Forest School from 2015 to 2017. By working together with NGOs, the several universities have engaged and negotiated with local fishery businesses to create job opportunities for university students. Internship programs, field visits and research are being arranged for the students majoring zoology and botany in order to increase their interest in the subjects, to gain local knowledge, to exchange knowledge among the universities in states/regions, and to create job opportunities. The Plan House exhibiting collections of medicinal plants and herbs provided by the Botany Department Alumni Association has been established near Taunggi University. MONREC has a funded program to improve the qualifications of employees, by sending them to well-known foreign universities for masters and doctoral degrees. This is done to help develop capacity within the Department with a long-term view to improve resources management.	EN

National Target(s)

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Progress has been made, but this is a target where no expectations have been set, so determining level of effectiveness is not possible. Regardless, 5 universities have improved substantially their capacity to develop high quality students in conservation themes.	EN

Obstacles and scientific and technical needs related to the measure taken

Time, funding and capacity development in the universities are obstacles.	EN

19.3.3 Invite contributions to start a Myanmar biodiversity journal

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No propgress EN

National Target(s)

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

19.3.4 Establish training programs in areas that universities have identified as priority gaps, including scientific writing, teacher training, and development of field-based courses.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

In cooperation with relevant government agencies, departments and INGOs, the Department of Zoology and Department of Botany from Taunggi University are now delivering skill training on research (e.g., apiculture for queen bees, and conservation of biodiversity in natural caves). Marine sciences was an identified gap that is now being filled as a result of cooperative work between government and Mawlamyine University. EN

National Target(s)

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

Work on this measure has begun successfully at 3 universities. EN

Obstacles and scientific and technical needs related to the measure taken

Funding, capacity within government and universities, and capacity within NGOs to provide assistance limit progress on this measure. EN

20.1.1 Develop a national resource mobilization strategy for biodiversity

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

No progress yet. EN

National Target(s)

20.1 By 2020, the funding available for biodiversity from all sources is increased by 50%

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No progress EN

Obstacles and scientific and technical needs related to the measure taken

A national committee has met twice but a strategy has not been produced yet, so only time is the issue. EN

20.1.2 Establish and capitalize a biodiversity conservation trust fund

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

Work on this measure is ongoing. A first meeting to study the possibility was held between the Forest Department (FD) and WCS, and the following activities to establish Biodiversity Conservation Trust Fund were completed: conduct a legal analysis to establish a trust fund, set a timeline for a second meeting, formulate Steering Committee, and develop a work plan. Representatives from FD and WCS went on a study tour to examine the Madagascar Trust Fund as a model and a return visit by the Madagascar Trust Fund occurred in 2017. EN

National Target(s)

20.1 By 2020, the funding available for biodiversity from all sources is increased by 50%

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Unknown

tools or methodology used for the assessment of effectiveness above

No fund has yet been established but meetings have been held and the intent exists. EN

Obstacles and scientific and technical needs related to the measure taken

In progress. EN

20.1.3 Submit a formal request to UNDP for Myanmar to join BIOFIN

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

FD sent a letter of interest to UNDP, and expressed that Myanmar wanted to join the BIOFIN, which is implemented by the UNDP. Representatives from UNDP, FD, other line Departments and partner I/NGOs met in March 2018 and discussed how Myanmar could join BIOFIN. BIOFIN is included as one element of the preparation of an integrated environmental financing strategy for Myanmar under the UNDP 'Governance for Resilience and Sustainability' project. UNDP is looking for a donor to support Myanmar joining BIOFIN. An official from the FD attended the 4th BIOFIN regional workshop held in Cebu, the Philippines, on 11-13 September 2018, to learn from other experiences on BIOFIN initiatives in other countries. EN

National Target(s)

20.1 By 2020, the funding available for biodiversity from all sources is increased by 50%

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been partially effective

tools or methodology used for the assessment of effectiveness above

This work has only recently started but there is clearly progress and Myanmar will join as soon as a donor can be found. EN

Obstacles and scientific and technical needs related to the measure taken

Funding, ironically enough has been one obstacle, along with the short time since the request was made. EN

20.2.1 Form a "GEF Coordination Team" and implement a "National Portfolio Formulation Exercise" to optimize GEF funding.

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

A GEF coordination team has been formed for GEF-7, with representatives from GEF National Operational Focal Point, line departments, GEF implementing agencies, and NGOs.	EN

National Target(s)

20.2 By 2018, donor and partner funding for biodiversity is better coordinated and implemented

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

The GEF team is in place and several GEF-7 fund applications have been developed.	EN

Obstacles and scientific and technical needs related to the measure taken

None.	EN

20.2.2 Establish donor roundtable on biodiversity led by MOECAF

Measures taken to contribute to the implementation of your country’s national biodiversity strategy and action plan

An international seminar on Cooperation on Biodiversity Funding in Myanmar was organized in Yangon in March 2015. More than 70 representatives from line departments, partners I/NGOs, donor agencies and embassies attended. Following this meeting, a high-level committee - the Environmental Sector Coordination Group, was established, chaired by the Minister of MONREC to better coordinate programs and projects in the environmental arena. This high level group has met on an annual basis for 2 years.	EN

National Target(s)

20.2 By 2018, donor and partner funding for biodiversity is better coordinated and implemented

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Measure taken has been effective

tools or methodology used for the assessment of effectiveness above

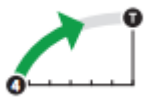
The committee to coordinate funding has been established and is meeting on an annual basis. EN

Obstacles and scientific and technical needs related to the measure taken

Unknown. EN

Section III. Assessment of progress towards each national target

1.1 By 2018, awareness of biodiversity values in key decision makers and line agencies has been improved.



2018 - On track to achieve target

Targets

1.1 By 2018, awareness of biodiversity values in key decision makers and line agencies has been improved. EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

While there have been no surveys to determine how many decision-makers at the national and state levels are aware of biodiversity, national parliamentarians are well-aware of biodiversity as a result of passing the new law on biodiversity and EN

protected areas in 2018, and briefings on biodiversity were provided to 7 states and regions. Forest Department's outreach unit conducted a training session at Popa Mountain Park in 2015. The topic of environmental education is included in regular capacity building training by the Nature and Wildlife Conservation Division (NWCD) of the Ministry of Natural Resources and Environmental Conservation (MONREC), conducted since 2018 May.

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

No formal surveys have been done. Of the 3 measures (Actions) planned, only the first has been achieved to 2018. EN

Adequacy of monitoring information to support assessment

No monitoring system in place

1.2 By 2018, the private sector has an enhanced understanding of the value of biodiversity and relation to business practices

2018 - Progress towards target but at an insufficient rate

Targets

1.2 By 2018, the private sector has an enhanced understanding of the value of biodiversity and relation to business practices EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There has been a very large effort to improve ecotourism through development of policies, guidelines, and training in this sector. However, other than under EIA training and an SEA for the hydro-power industry, other sectors have not been trained extensively on biodiversity issues. Biodiversity so far is not well mainstreamed into other sectors.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Among the major industries in Myanmar (mining, energy, agriculture, tourism, fishing) only the tourism industry has been a focus under this target. However, in the areas of mining, agriculture and fishing some progress has been made, specifically related to other targets in the NBSAP. There are no data as yet to assess the effectiveness of the ecotourism efforts (e.g., increased ecotourists, reduced pressure on biodiversity, etc.). Little work has been conducted in other sectors other than under EIA.	EN

Adequacy of monitoring information to support assessment

No monitoring system in place

1.3 By 2017, the media have an improved understanding of and capacity to communicate topics related to biodiversity

2018 - Progress towards target but at an insufficient rate

Targets

1.3 By 2017, the media have an improved understanding of and capacity to communicate topics related to biodiversity	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The total number of media attendees in the two major cities was 43 in two workshops. While they should have an increased understanding of biodiversity, a search of articles in the Myanmar Times using several biodiversity related terms (forest, biodiversity, environment*, elephant, fish, wildlife) showed no increase in coverage of these subjects between 2014 and 2017. However, many other media have increased coverage. Fr example, “The Voice Myanmar” (http://thevoicemyanmar.com/environment), “7 Day Daily” (http://7daydaily.com/environment), Eleven Media (http://news-eleven.com/?s=environment) and others are broadcasting or pressing environmental issues, including biodiversity in Myanmar.	EN

Indicators and Activities

Indicator(s)used in this assessment

Number of environmental articles in the Myanmar Times by year Number of training sessions Number of media people attending.	EN

Any other tools or means used for assessing progress.

Numbers of articles (in English) in the Myanmar Times – a national news service.	EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

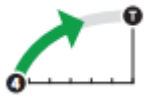
Level of confidence of the above assessment

There is no media monitoring in place to indicate success. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

1.4 By 2020, local communities in and around PAs have enhanced opportunities to share knowledge and participate in management activities



2018 - On track to achieve target

Targets

1.4 By 2020, local communities in and around PAs have enhanced opportunities to share knowledge and participate in management activities EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The very large number of training sessions and workshops for this target indicates a comprehensive effort to improve the capacity of local communities near PAs with respect to management and assist in management activities. Further, progress is being made towards the recognition and development of LCCAs. EN

Indicators and Activities

Indicator(s)used in this assessment

Numbers of training sessions; numbers of attendees EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

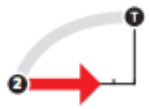
Level of confidence of the above assessment

Large number of workshops and attendees indicates a very large effort to train people. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

1.5 By 2020, primary and secondary curricula have incorporated biodiversity values



2018 - No significant change

Targets

1.5 By 2020, primary and secondary curricula have incorporated biodiversity values EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The 2015 National Report noted that primary and secondary curriculums include environmental issues, but there are no data to suggest that these have been improved or that more schools carry these subjects. In the case of Yangon, for example, a survey indicated that no state-owned primary and secondary school has environmental conservation (or related) subjects in their curriculum. While several key biodiversity-related references have been translated into Myanmar language, there is no information available as to how many school curricula have been altered to incorporate biodiversity values, or that make use of the translated references. A check of Google trends suggests no general increase in searches from within Myanmar using google (see graph attached). However, this trend is likely flawed because it does not consider searches in Myanmar language.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

The only information is the few references that were translated into Myanmar language.	EN

Adequacy of monitoring information to support assessment

No monitoring system in place

2.1 By 2018, Myanmar has made a formal commitment to natural capital accounting and has taken significant steps to integrate the value of biodiversity and ecosystem services Into Its national accounts

2018 - Progress towards target but at an insufficient rate

Targets

2.1 By 2018, Myanmar has made a formal commitment to natural capital accounting and has taken significant steps to integrate the value of biodiversity and ecosystem services Into Its national accounts	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There has been little progress on this target except for a meeting and two independent studies on ecosystem valuation during this review period. It will likely not be possible to meet this target by 2020. Obstacles include good data on the value of ecosystem services at national and state scales (which do not exist), a mechanism to incorporate ecosystem services into national accounting, and funding to support the initiative.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

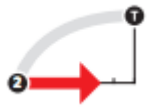
Level of confidence of the above assessment

The general lack of progress on this target (similar to most other countries in the world) suggests that it will be a very long-term process to value ecosystem services at a national scale.	EN

Adequacy of monitoring information to support assessment

No monitoring system in place

2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning



2018 - No significant change

Targets

2.2 By 2018, significant steps have been taken to incorporate biodiversity and ecosystem services into state/region planning	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

No progress on the development of guidelines or training of state staff to incorporate ecosystem services into planning. Nevertheless, there is a recognition among community user groups (fishery, forest) of the values that can be achieved through proper management and conservation (see Targets 5, 6, 7, 11 and 15). At an individual project level, where training has been provided and organisation established, there is clear understanding of ecosystem values. So, while there is change, it is happening slowly and at the local level. At the regional level, projects like BOBLME on the ocean conditions in the waters of the Bay of Bengal and Andaman Sea, sustainability is very much highlighted and is a clear consideration in ASEAN policies and programmes.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Neither of the 2 planned measures was actioned. At the project level, i.e., local user groups, ecosystem services are well-considered.	EN

Adequacy of monitoring information to support assessment

No monitoring system in place

2.3 By 2018, the government has significantly enhanced its capacity to review and assess EIAs and monitor and enforce EMPs.

2018 - Progress towards target but at an insufficient rate

Targets

2.3 By 2018, the government has significantly enhanced its capacity to review and assess EIAs and monitor and enforce EMPs.	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There has been a large effort to improve EIA procedures, requirements and staff training in Myanmar. However, information from UNDP and ECD suggests that enforcing the requirement to conduct an EIA on businesses is still an outstanding issue. A third specified measure is the development of sufficient GIS databases to assist in EIAs and SEAs and this is lacking although the capacity is increasing, for example as ecosystem mapping is developed. There has also been progress (but no SEA) in the area of ecotourism, with new policies, impacts assessments, and training of operators to improve and monitor planning (see Target 1.2).	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

There has been a large number of government staff trained in aspects of EIA. What is missing at this point is actual enforcement of the requirement to conduct EIAs, for which there is a lack of capacity. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

2.4 By 2017, Myanmar has been assessed as an EITI compliant country

2018 - On track to achieve target

Targets

2.4 By 2017, Myanmar has been assessed as an EITI compliant country EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The government is reporting as required to achieve EITI status. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

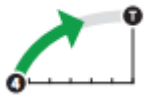
Level of confidence of the above assessment

Information provided by responsible departments and the MRCB. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

3.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management



2018 - On track to achieve target

Targets

3.1 By 2020, the national legal framework on tenure encourages conservation and sustainable management EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The process of first developing a Land Policy, dealing in part with land tenure, followed by integrating the policy into a law, is continuing on pace to be complete by 2020. There has been no identified progress, however, on NBSAP measure 3.1.3 to mainstream conservation into regional land use planning. The new Forest Law clarifies land tenure with respect to community forests and there has been progress EN

in working towards LCCAs. The Conservation of Biodiversity and Protected Areas Law (2018) also enable local tenure systems.

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

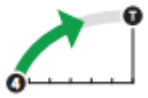
Level of confidence of the above assessment

Presence of the published policy, laws, and the assurance that the land law will soon follow. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

3.2 By 2020, positive incentives are established for the sustainable use of nature



2018 - On track to achieve target

Targets

3.2 By 2020, positive incentives are established for the sustainable use of nature EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The Forest Law has been re-written to enable more incentives for conservation and there has been a large effort towards managing community forests in a sustainable manner. Three local community fishing groups have been established and others are being developed, and the there is a new effort towards improving aquaculture under a joint programme with FAO.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

With the Land Policy, advances in FLEGT, advances in community resources use, and the overall effort to improve sustainable nature management, achievement of this target is likely.	EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

4.1 By 2020, SEA conducted and guidelines prepared for mining and energy sectors.

2018 - On track to achieve target

Targets

4.1 By 2020, SEA conducted and guidelines prepared for mining and energy sectors.	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

27 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Half the target is completed (hydro-power) and there is advances on the other half pertaining to the mining sector.	EN

Indicators and Activities

Indicator(s)used in this assessment

Number of reports accepted by government and guidelines published. SEAs completed.	EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment is based high quality report for the hydro power sector and on information from government and NGOs.	EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

2018 - Moving away from target

Targets

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Moving away from target

Date the assessment was done

18 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Of the four measures listed in the NBSAP, there have been advances for two. Particular lacking, so far, is a law requiring a Biodiversity Action Plan (BAP) for any development. Nevertheless, there are guidelines which will include a BAP for hydro developments. Further, progress is being made towards cleaner cooking fuels and establishing a green procurement programme. While the Ecological Footprint indicator still suggests overall sustainability, the index and baseline are becoming closer with each passing year (see attached). The Environmental Performance Index (EPI) ranks Myanmar poorly with its overall index of 24 performance indicators across ten issue categories covering environmental health and ecosystem vitality. These 24 metrics provide a gauge at a national scale of how close countries are to established environmental policy goals. In particular the EPI highlighted unsustainable use of forests and water resources (see attached). Increasing marine catch (see Target 6) is also unsustainable. All of these indicators suggest that sustainability is not sufficiently mainstreamed to result in sustainability.

	current rank	current score
Environmental Performance Index	138/183 countries	45.32

EN

Indicators and Activities

Indicator(s)used in this assessment

Ecological Footprint and Environmental Performance Indicator, forest harvest levels and fish harvest levels.

EN

Any other tools or means used for assessing progress.

Assessment of measures taken | EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Global summary indicators can provide a directional suggestion of relative performance, sometimes with a temporal component. On the positive side work towards alternative fuels and overall attention to the NBSAP suggests positive changes are coming . | EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Other relevant website address or attached documents

Myanmar Eco footprint.jpg
Myanmar EPI 2018.pdf
Envir. Performance Index

5.1 By 2020, at least 10% of 'dry mixed deciduous forest' (DMDF) and mangrove forest has been put under some form of protection, including sustainable use and management

2018 - Moving away from target

Targets

5.1 By 2020, at least 10% of 'dry mixed deciduous forest' (DMDF) and mangrove forest has been put under some form of protection, including sustainable use and management | EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Moving away from target

Date the assessment was done

18 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Target 5 is primarily to reduce habitat and ecosystem loss. In forests, however, Myanmar has been unable to meet the global target and, along with several other countries in Central and SE Asia, has a high rate of deforestation (1.4% in 2016 and almost 2% on average from 2005-2015) (Kissinger 2017, FAO 2015). Myanmar lost almost 400,000 ha/yr of forest between 2005 and 2015, and its intact forest landscapes were reduced by 31% from 2001-2013 (Potopov et al. 2017) and these losses have continued with a further decline by 112,000 ha/yr of intact forest (see 2018 map under Implementation 2.3.3). The WRI Global Forest Cover dataset indicates a loss of forest with at least 30% canopy occurred on 997,302 ha from 2015-2017. Teak, which has been the backbone of forestry in Myanmar since the 1800s, has become much less abundant. Following a moratorium on harvesting in 2014, the harvest quota was reduced from 48,897 to just 19,201 trees as an AAC. There is also a moratorium on timber extraction in Bago Mountain Range, a key area for teak in Myanmar, for ten years (2016 to 2026). The area of mangrove forest has continued to decline (based on available data to 2015) and only a small area has been recently additionally protected in the Gulf of Mottama at a Ramsar site. The Forest Department estimates that about 502,000 ha of mangrove remained in 2017 (FD presentation, attached), but projects a further substantial decline by 2030. Land cover change data at the national level for 2005 to 2015, developed by the Forest Department RS-GIS Department, showed that 136,500 ha (27%) of mangrove forests changed to 'Other Land Use' (mainly cropland), 90% of which occurred in the Ayeyawaddy and Rakhine regions. Overall, mangrove forests declined by 21 km2/ year to 2015 and 13 km2/year through 2018. Area of DMDF added under protection has also been small and there are only a few CFs certified as sustainably managed. On the positive side, the area under CF has considerably increased, and as these areas become certified, there will be incremental movement towards the target. It seems unlikely that the target can be met within 2 years. CF is largely dealt with under Target 15, but there are now several CFs in mangrove areas and there is a mangrove action plan that is currently being implemented.	EN

Indicators and Activities

Indicator(s)used in this assessment

PA area, data from Clark University (on mangrove area), the global mangrove dataset, and global forest monitoring data from FAO and University of Maryland (Hansen et al.).

Global forest data set (WRI site)

EN

Any other tools or means used for assessing progress.

Reports from Forest Department, web based material and published papers.

EN

Relevant websites, links, and files

Mangrove management presentation FD 2017.pdf
Myanmar forest loss 2000_2017 UN Bio lab.jpg
WRI Global Forest Watch

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

Limited new forest area is under full protection but there have been considerable advances for community forest area, although certification remains a slow process. Real-time monitoring capacity is lacking as yet and reliance on outdated information (3 years old) and global datasets are required for this target. Achieving this target is constrained by lack of capacity to regularly monitor and map these two forest types (or any other types), personnel to enforce regulations in protected areas, and capacity to train community forest users on sustainable forest management within a short time frame.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

FAO Forest Resources Assessment, Global Forest Change dataset, AAC, and global mangrove area datasets

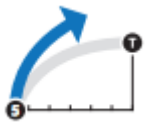
EN

Other relevant website address or attached documents

Forest cover change to 2015.jpg

Myanmar intact forest 2018.jpg

5.3 By 2020, all wetland areas surveyed and prioritized for conservation value.



2018 - On track to exceed target

Targets

5.3 By 2020, all wetland areas surveyed and prioritized for conservation value. EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to exceed target

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The updated wetland inventory has been completed and will be published soon; the Ramsar provisional list of significant wetlands was published in 2018. There were 4 new Ramsar sites added over the past 4 years (for a total of 5 sites), exceeding the planned three sites. Community participatory monitoring is being practised in three Ramsar Sites. EN

Indicators and Activities

Indicator(s)used in this assessment

Number and area of Ramsar sites, ranking of wetlands report. EN

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

Ramsar sites were approved and there is a report on wetlands prioritization. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

5.2 By 2018, the PFE will have been re-assessed

2018 - Progress towards target but at an insufficient rate

Targets

5.2 By 2018, the PFE will have been re-assessed EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

This target will be presumably achieved by 2019 in time to report to the FAO Global Forest Resources Assessment. There are, however, delays in establishing a national forest inventory project. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

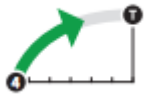
Level of confidence of the above assessment

Discussion with Forestry Department and FAO suggest that the target will likely be met, but will be delayed past 2020. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

5.4 By 2020, there has been an increased effort to combat and reduce illegal logging.



2018 - On track to achieve target

Targets

5.4 By 2020, there has been an increased effort to combat and reduce illegal logging. EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

18 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

This target is to increase enforcement effort. Illegal logging has resulted in forest EN

losses (and consequently associated tax and job benefits) especially of valuable species. The Environmental Investigation Agency indicated that, from 2001-2013, 10.2 million m3 of Myanmar of unauthorized logs were estimated to have been exported to global markets, which would equate to a 47.7% illegal logging rate in the country, relative to exported wood alone (Kissinger 2017). The same agency reported 233,484 tonnes of illegal wood were seized between 2010 and 2016. Large amounts of teak and rosewood continue to be cut and illegally exported according to the government statistics (see above), as well as a Mongabay investigation in 2015-16 (see link). As a result of the teak export ban in 2014, prices of teak rose considerably, making illegal logging even more profitable (Kollert and Kleine 2017).

This is a difficult target for which to develop a comparative baseline, which would have to include some information about how much illegal logging there was in 2014 vs. how much is occurring now. There has been an annual increase in illegal wood seized and charges laid, but while this may reflect better planning and enforcement, it may also reflect increased illegal logging. Nevertheless, there is now a national plan in place to deal with the issue that is being implemented and the results are positive. There has not been, however, any increase to the enforcement budget and illegal timber harvesting continues to be a serious problem in Myanmar and most of Southeast Asia.

Indicators and Activities

Indicator(s)used in this assessment

The indicators were amount of wood seized, arrests, and value of wood seized. EN

Any other tools or means used for assessing progress.

Online reports and published papers. EN

Relevant websites, links, and files

Investigation into illegal logging

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The statistics reflect wood seized, but not necessarily reduced illegal logging. EN

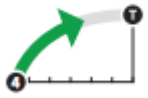
Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Other relevant website address or attached documents

IUFRO_WS36_-ITTO_Teak.pdf

5.5 By 2020, negotiation phase to sign Forest Law Enforcement Governance and Trade (FLEGT) and Voluntary Partnership Agreement (VPA) has been conducted



2018 - On track to achieve target

Targets

5.5 By 2020, negotiation phase to sign Forest Law Enforcement Governance and Trade (FLEGT) and Voluntary Partnership Agreement (VPA) has been conducted	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Among the 4 measures planned for this target, all have been completed, including the re-writing of the forest law.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Both parties indicated that there has been progress in the negotiations and there is active involvement among all stakeholders. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries.

2018 - Progress towards target but at an insufficient rate

Targets

6.1 By 2020, states/regions have approved laws allowing for community and/ or co-managed fisheries. EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

This target has as its main focus the changing of laws, although there are also measures dealing with community management of fisheries and development of community fisheries guidelines. Much progress has been made on the latter, but no progress was reported with respect to legal status. Targets were set for 400 EN

Community Fishers User Groups (CFiUGs) managing at least 10,000 ha, and while there were far less than 400 groups formed (in fact, 4 were formed), more than 10,000 ha is now under CFiUG management. There are no data from a monitoring system to indicate sustainable fishing levels for the Local Marine Mnagement Areas (LMMAs) however, and it is uncertain how often the LMMAs are monitored. (Note: Fisheries officials believe that this target was incorrectly set at 400 and that 4-6 would have been a reasonable target.)

Indicators and Activities

Indicator(s)used in this assessment

Numbers of LMMAs, and area managed. Numbers of laws. EN

Any other tools or means used for assessing progress.

Information was also gathered from project websites (e.g., MYSAP). EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Some advances but no monitoring data and no information about state laws. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

6.2 By 2020, total commercial marine catch reduced to more sustainable levels.

2018 - Moving away from target

Targets

6.2 By 2020, total commercial marine catch reduced to more sustainable levels. EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Moving away from target

Date the assessment was done

18 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The global marine impact index shows that the oceans off Myanmar have been highly affected by human activities (see attached from UN Biodiversity Lab) in several areas, including in Rakine State, the mouth of the Ayeyawady River and delta, and at the southern border with Thailand. This target is to reduce the marine catch, and while there is limited information available for individual fish species, the data show that the overall marine catch has continued to increase through 2017 (see table attached) by 152 metric tons per year. Fishing pressure is high and unevenly distributed among the fishery types (see figure from Tezzo et al. 2018). There have been positive changes, with the development of community groups in a few areas, increased training for local communities including many women, improvements through targeted programs for mangrove aquaculture, and the target for area under community management was exceeded. There is now a National Coastal and Marine Resources Management Committee, recently established to oversee management of coastal marine areas. EN

Indicators and Activities

Indicator(s)used in this assessment

Marine impact mapping, fishery impact, and fish harvest data. EN

Any other tools or means used for assessing progress.

Online reports and publications EN

Relevant websites, links, and files

Myanmar fisheries catch data.docx
Global marine impact.png

Fishery presure indicator Tezzo et al 2018.jpg

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The marine catch were the major indicator used, suggesting that, if the catch was excessive before 2015, it has not improved. Better information about species, however, would improve the value of the indicator. Other data include the high impact under the global marine impact dataset.	EN

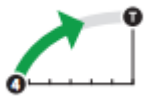
Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Other relevant website address or attached documents

Myanmar Fisheries Situation Report (1).pdf

7.1 By 2020, SRI and other forms of environmentally friendly rice production have been implemented in 10% of rice paddy area



2018 - On track to achieve target

Targets

7.1 By 2020, SRI and other forms of environmentally friendly rice production have been implemented in 10% of rice paddy area	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Aichi Target 7 is about sustainable agriculture, aquaculture and forestry. A key pillar of this moving forward in Myanmar is the Myanmar Sustainable Development Plan, which recognizes the importance of natural resources and environmental sustainability as necessary for growth. Forestry is absent from National Target 7 but is dealt with under National Targets 5 and 15. The two targets under National Target 7 deal with agriculture (7.1) and aquaculture (7.2), and see National Target 6 for more information on aquaculture. Implementing the Target 7.1 for improved rice production requires considerable training be provided to farmers to improve crop techniques and research at the genetic level to improve varieties. Research on rice types is ongoing and has been successful for several varieties native to Myanmar. The Ministry of Agriculture has trained several thousand people so far on sustainable rice production, and rice production has increased in Myanmar. It is uncertain, however, if the training and production are correlated. There has been also an extensive program to work with floating vegetation farmers, to reduce chemical use and to improve techniques. There is a national program, for biological control of pests on vegetable crops.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Without a program that monitors a sample of individual farms, it is impossible to link training to production.	EN

Adequacy of monitoring information to support assessment

No monitoring system in place

7.2 By 2020, 5% of fish and shrimp aquaculture by volume follows international best practices for sustainable management

2018 - Progress towards target but at an insufficient rate

Targets

7.2 By 2020, 5% of fish and shrimp aquaculture by volume follows international best practices for sustainable management	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Myanmar with EU partnership has recently instituted a program to improve the sustainability of shrimp farming practices. There are no results as yet and so progress towards the target is unknown. The JICA / Dept. of Fisheries programme started in 2009 has trained a large number of fish and shrimp farmers and is ongoing. The more recent expansion of the extension programme is working with farmers. Another program “Myfish2, involving World fish and the DoF has an objective to improve fishery management in Ayeyarwady Delta, began in 2017. There are few data on how many farms follow best practices but Fisheries has recently trained 17 farms. What is known is that larger farms use less labour than small farms (per unit of production) owing to economies of scale. Some indicators do suggest considerable improvements: 13% of farms use pelletised foods vs. 7% in 2011 and yield is now about 3.5 t/ha vs. 3/ha in 2011.	EN

Indicators and Activities

Indicator(s)used in this assessment

Use of pelletized foods, yield/ha.	EN

Any other tools or means used for assessing progress.

Web-based material on MYSAP and Myfish2. EN

Relevant websites, links, and files

Myfish2

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Web-based material on MYSAP, other web-based materials and published reports. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Other relevant website address or attached documents

AquacultureInMyanmar.Research Report Belton et al 2017.pdf

8.2 By 2017, the EIA Procedure, NEQG (guidelines), and NEQS (standards) include adequate provisions to ensure protection of biodiversity and ecosystem services

2018 - On track to achieve target

Targets

8.2 By 2017, the EIA Procedure, NEQG (guidelines), and NEQS (standards) include adequate provisions to ensure protection of biodiversity and ecosystem services EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The guides and standards were produced and circulated, and a large amount of training has been provided to ECD staff on their application. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

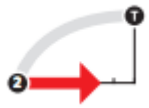
Level of confidence of the above assessment

Guidelines were produced on time and many ECD staff have been trained. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

8.3 By 2020, a water pollution monitoring network involving both government and local communities is operational at three critical freshwater sites and at existing or proposed Special economic Zones



2018 - No significant change

Targets

8.3 By 2020, a water pollution monitoring network involving both government and local communities is operational at three critical freshwater sites and at existing or proposed Special economic Zones EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

None of the measures for this target were carried out to 2018, although there is an existing water quality monitoring network on the Ayeyawady River and there is a comprehensive water quality program in association with Norway that is underway. There has been a monitoring program recently completed on the Chindwin River, but that was a one-time program. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

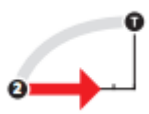
Level of confidence of the above assessment

The IWRM project is proceeding but no data were available. EN

Adequacy of monitoring information to support assessment

No monitoring system in place

8.4 By 2020, informal and artisanal minors have an enhanced understanding of pollution and toxicity of mercury and methods to reduce its use



2018 - No significant change

Targets

8.4 By 2020, informal and artisanal minors have an enhanced understanding of pollution and toxicity of mercury and methods to reduce its use EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

No progress was made on this target. Two projects were proposed by NGOs but there is no evidence they received funding. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

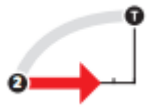
Level of confidence of the above assessment

No information provided and no reports found online or published. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

8.5 By 2020, the sale and use of fuel additives, agrochemicals and veterinary drugs that are known to have significant negative impacts on biodiversity and ecosystem services are effectively controlled and, where appropriate, banned



2018 - No significant change

Targets

8.5 By 2020, the sale and use of fuel additives, agrochemicals and veterinary drugs that are known to have significant negative impacts on biodiversity and ecosystem services are effectively controlled and, where appropriate, banned	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

No progress on this target was made, although a new Pesticide Law was adopted.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

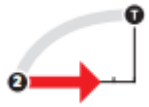
Level of confidence of the above assessment

No information was found to suggest progress for any of the 3 measures proposed.	EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community



2018 - No significant change

Targets

9.1 By 2019, NIASP has been developed and approved, and is under active implementation with the support of civil society, local communities, the private sector and the international community	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

28 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There are a known 97 invasive species in Myanmar according to the Global Invasive Species Database and 267 species listed on the GIASIP Gateway site. Among the 5 measures in the NBSAP, none has been fully accomplished yet for invasive species. The only substantive action has been the establishment of a plant quarantine facility at the Yangon Airport (by Agriculture Department) and the identification of a few aquatic invasive species. There is an invasive species action plan in preparation. There is an extensive effort to prevent GMO contamination in crops.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Relevant government departments all provided the same answers of little work so far.	EN

Adequacy of monitoring information to support assessment

No monitoring system in place

10.1 By 2020, 15 per cent of Myanmar's coral reefs conserved within MPAs, including LMMAs and other area-based conservation measures

2018 - Progress towards target but at an insufficient rate

Targets

10.1 By 2020, 15 per cent of Myanmar's coral reefs conserved within MPAs, including LMMAs and other area-based conservation measures	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

22 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Of the 187,000 ha of reef, about 51,000 are protected in Lampi NP and Thamihla Wildlife Sanctuary (i.e., already was >20%). Therefore this target presumably means adding an additional 15%. Myanmar has a long coast and a large offshore area, the ocean in the Andaman Sea and Bay of Bengal are highly impacted by human actions (see attached map from UN Biodiversity Lab) and so protected areas are needed as a key means to conserve biodiversity. However, no new marine parks were created after 2014. Three LMMAs, however, were established to improve management in exclusive management zones along some reefs in the Myeik Archipelago that cover another 10,000 ha, adding perhaps another 5% reef area into some form of protection. These LMMAs are the first for Myanmar and are part of the management program to protect coral reefs from poor and excessive fishing	EN

practices. Total current reef coverage is about 33% of Myanmar’s reefs, but the target of +15% under the NBSAP has not yet been met.

Indicators and Activities

Indicator(s)used in this assessment

Area of coral reef protected and as a %reef area, numbers of LMMAs, area in MPAs. EN

Any other tools or means used for assessing progress.

Web based searches, published papers and reports, and interviews. EN

Relevant websites, links, and files

Global marine impact.png

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

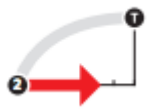
Level of confidence of the above assessment

Good data on the area protected and known marine parks planning. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

10.2 By 2018, destructive fishing practices in coral reef areas banned and effectively enforced



2018 - No significant change

Targets

10.2 By 2018, destructive fishing practices in coral reef areas banned and effectively enforced EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

23 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The BOBLME project, in 2014 concluded that coral reef health in the Myeik Archipelago was significantly impacted due to a combination of coral bleaching events, dynamite fishing, and excessive sustained fishing pressure. Of these, the impacts of dynamite fishing are the most serious. These, along with other forms of Illegal, unreported and unregulated fishing are the major threats to the Myeik Archipelago's reefs. Pervasive use of explosives, poisons, and drift nets and targeting of high-value species like sharks and groupers has devastated the fish populations and destroyed the corals that support marine productivity. The result is once vibrant coral communities replaced by wastelands of algae and sea urchins, and supporting low diversity, low biomass populations of low value fish. However, few measures have been taken towards achieving this target for protection so far, except for the 3 LMMAs and planning for other CFiUGs (see Targets 6.1 and 10.1). There has been no increased enforcement effort. EN

Indicators and Activities

Indicator(s)used in this assessment

Number and area of LMMAs and enforcement information. EN

Any other tools or means used for assessing progress.

Reports and online information EN

Relevant websites, links, and files

Coral reef survey Myeik, 2014
BOBLME Project reports

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

No measures (actions) were reported aside from the establishment of 3 LMMAs. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Other relevant website address or attached documents

NOAA coral reef real time coral bleaching data

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs)

2018 - Progress towards target but at an insufficient rate

Targets

11.1 By 2020, 8% of Myanmar's land area Is conserved within Protected Areas (PAs), including Indigenous Community Conservation Areas (ICCAs) EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

25 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Myanmar currently has 5.75% of its landbase in protected areas (PAs) including 42 National Parks. (If all other areas were included, such as Ramsar sites, wildlife sanctuaries, UNESCO sites, etc., then the area under some form of protection is closer to 8.7%). Including all 19 planned national parks (i.e., including those not yet gazetted), the Park PA area alone would be just under 8%. The land negotiations at Taninthayi (ongoing since 2002) and Hkakabo Razi NP SE are progressing but slowly and it is uncertain if they will be concluded by 2020, meaning that it is unlikely that the 8% PA target will be met. One important consideration for protected areas is representativeness of the various ecoregions. Data from the IFC (2017) and the UN Biodiversity mapping data (attached) indicated that there is very low representation of certain ecoregions, especially for coastal forests, the Northern Indochina Subtropical ecoregion, and forests of the Ayeyawady ecoregions (see maps at 11.1.1). There is progress on ICCAs but none is official yet.	EN

Indicators and Activities

Indicator(s)used in this assessment

Area in formal PA, area of all types of PA, and proportion of ecoregion types within PA	EN

Any other tools or means used for assessing progress.

UN Biodiversity mapping, online reports and published papers	EN

Relevant websites, links, and files

Global protected areas database
PA and KBA % by ecoregions.pdf
PAs and ecoregions.jpg
Graph showing area of protected area in each ecoregion.docx
Myanmar Official PAS Map (eng).jpg
Myanmar Oficial PAS Map (myan).jpg

Level of confidence

Level of confidence of the above assessment

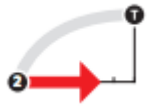
Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The indicator shows the target is unlikely to be met and interviews with staff suggest that negotiations will not be complete by 2020.	EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate



2018 - No significant change

Targets

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Of the 3 measures planned in the NBSAP for this target, work has only been done on 11.2.2, with respect to improving laws to recognize traditional governance types. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

There has been some progress for 11.2 but none for 2 of the 3 proposed measures. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.

2018 - Progress towards target but at an insufficient rate

Targets

11.3 By 2020, the management effectiveness of Myanmar's PA system has significantly improved, with 15 PAs implementing SMART, at least five PAs implementing management plans, and local communities are involved in management activities in at least five PAs.	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

For some measures, the NBSAP target was exceeded (SMART application, and management planning), for other measures, such as METT surveys, it is doubtful that the set target can be met. Regardless, there has been considerable advancement in the management of PAs in Myanmar, especially with the application of management plans for a large number of PAs, development of an ecotourism policy and plan, and the amount of training provided to staff and local communities. The METT surveys indicated improvements in some parks, but very low scores in others.	EN

Indicators and Activities

Indicator(s)used in this assessment

Numbers of METT surveys, parks with SMART applied, number of training events.	EN

Any other tools or means used for assessing progress.

Online reports, data provided by NGOs and government.	EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

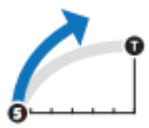
Level of confidence of the above assessment

Progress on much of the proposed measures and partial advances in others. However there is no real measure of effectiveness of training or enforcement	EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

11.4 By 2020, Myanmar's sites of premier conservation value are recognized by relevant international designations, through the designation of one natural WHS, three additional Ramsar sites, and one Biosphere Reserve



2018 - On track to exceed target

Targets

11.4 By 2020, Myanmar's sites of premier conservation value are recognized by relevant international designations, through the designation of one natural WHS, three additional Ramsar sites, and one Biosphere Reserve	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to exceed target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Among the 3 measures towards this National target, two have been exceeded: number of Ramsar sites (4) and number of Biosphere Reserves (2). UNESCO Heritage sites have been nominated but have not yet been accepted. EN

Indicators and Activities

Indicator(s)used in this assessment

Numbers of Ramsar sites, number of Biosphere Reserves, number of UNESCO sites EN

Any other tools or means used for assessing progress.

Data from Ramsar website, online reports, published information, data from NGOs. EN

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

Indicators are robust. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

11.5 By 2020, a Marine Spatial Plan with nested MPAs is prepared for the Myeik Archipelago.

2018 - Progress towards target but at an insufficient rate

Targets

11.5 By 2020, a Marine Spatial Plan with nested MPAs is prepared for the Myeik Archipelago.	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There is an advice document on marine spatial planning and there has been training in spatial planning provided by WCS. Work by Dept. Fisheries with FFI is progressing through the LMMAs but there has been limited planning for any new MPAs. The government has made a commitment to have an official marine spatial plan completed by 2121.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

While there has been progress and a government commitment, the target will not be met by 2020.	EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

12.1 By 2020, the conservation status of priority, globally threatened species In Myanmar has improved

2018 - Progress towards target but at an insufficient rate

Targets

12.1 By 2020, the conservation status of priority, globally threatened species In Myanmar has improved	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

22 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There is a very high regional-level density of threatened species and a high number of rare species in Myanmar (see attached maps from UN Biodiversity Lab), with a low level of protection in terms of overlap in protected areas (see attached maps from UN Biodiversity Lab). The status of some turtle species has been improved, but there have been continued declines in most large mammals, and no species has been down-listed by IUCN. Myanmar has taken large measures, however, to understand better many of the threatened and endangered species through many research programs and some monitoring. This work has not been well-translated into national or state level planning as yet, however, with the exception of in and near certain protected areas. Comprehensive georeferenced distribution maps for species have not been prepared, and global datasets contain no better data except for the available large-scale maps for 6 Myanmar endemic species on the Alliance for Zero Extinctions website. Considerable work has been done to evaluate species for the IUCN Red List, with taxon expert groups formed and training provided on assessments. As a result the IUCN Red List for Myanmar has grown annually (see Target 12.3).	EN

Indicators and Activities

Indicator(s)used in this assessment

Number of research studies some with population data, IUCN Red List, ongoing monitoring work for some species.	EN

Any other tools or means used for assessing progress.

Data from published reports and in scientific journals.	EN

Relevant websites, links, and files

PAs and threatened species index.jpg
PAs and species rarity index.jpg
PAs and biodiversity intactness.jpg

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Many species are being studied but comprehensive population data and mapping are still lacking for most. There have been positive results for many species of turtles, but losses of many larger species, such as elephants continue for several reasons including habitat loss (especially forests) and poaching. There has, however, been considerable work towards improving understanding of habitat and populations of many species.	EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced

2018 - Progress towards target but at an insufficient rate

Targets

12.2 By 2020, the illegal wildlife trade in Myanmar has been substantially reduced	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

24 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Myanmar has undertaken a considerably increased enforcement effort through targeted programmes and public education. However, the enforcement budget has not been increased and it is uncertain what effects these programs are having as yet. There are numerous publications (samples attached) high-lighting continuing aspects of illegal wildlife trade in and through Myanmar, especially in elephants, pangolins, orchids, and cats. Recent information for elephants indicates continued population decline, and a recent survey by Traffic at Kyaiktiyo indicated that illegal wildlife trade in that area had increased over results achieved a few years earlier (attached). Numbers of seizures and numbers of prosecutions can reflect increased enforcement, improved intelligence, or increased crime and so indicators for this target are problematic. The best information comes from very small samples provided by individual studies following illegal products in the same markets over time, for example those at Mong La on the Chinese border (see attached), where numbers of most threatened species traded have increased based on several published reports. The EU is funding a joint project with CITES and the United Nations Office on Drugs and Crime (UNODC), the “Asia Wildlife Enforcement and Demand Management” project, which started in May 2016. The 4-year over much of South Asia, including in Myanmar, has a focus on national-level enforcement frameworks, capacity for investigation and prosecution, regional collaboration, enforcement in key protected areas, and raising the awareness of decision. In Myanmar, the focus has been on illegal killing of elephants.	EN

Indicators and Activities

Indicator(s)used in this assessment

Numbers of seizures, numbers of charges laid, enforcement budget.	EN

Any other tools or means used for assessing progress.

Independent research studies (see attached). EN

Relevant websites, links, and files

Myanmar illegal wildlife survey at Kaiktiyo Traffic 2017.pdf
Elephant poaching Myanmar PLOS ONE 2018.pdf
Pangolin trade at Mong La MMR Glob Ecol Cons 2015.pdf
Felid trade in Myanmar 2018.pdf
EU/CITES project on illegal wildlife trade in SE Asia

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Most of the programmes are newly instituted and ongoing and so assessing effectiveness is uncertain. Lack of budget increase or enforcement staff, coupled with declining numbers of several key species, would suggest that progress may yet be hampered by insufficient effort. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

2018 - On track to achieve target

Targets

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There is a national red list and with the current taskforce and its species subgroups that have been trained, there is now a strong capacity to evaluate and add species to the list. The NBSAP target for number of species assessments had already been exceeded in 2018.	EN

Indicators and Activities

Indicator(s)used in this assessment

International IUCN Red List; AZE website; number of training sessions provided to staff; numbers of species assessed.	EN

Any other tools or means used for assessing progress.

Online reports, data from IUCN and government	EN

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

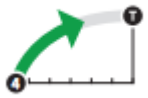
Level of confidence of the above assessment

The target for species assessments was exceeded and the species subgroups are meeting annually to assess more species.	EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

12.4 By 2020, conservation status of migratory species has been Improved



2018 - On track to achieve target

Targets

12.4 By 2020, conservation status of migratory species has been Improved	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Myanmar has taken several key steps towards improving the conservation status of species, including listing 4 Ramsar sites, conducting research on some species, monitoring of others and developing 2 management plans. There are no long-term data however, with which to assess effectiveness.	EN

Indicators and Activities

Indicator(s)used in this assessment

Number of management plans, number of important bird areas protected (among KBAs), number of research programs on migratory species.	EN

Any other tools or means used for assessing progress.

Online searches, data from NGOs and government.	EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

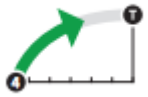
The target for Ramsar sites was exceeded, and there has been a large increase in research and monitoring of migratory species. There is no confidence in the estimate of progress, owing to the lack of long-term data on species.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.



2018 - On track to achieve target

Targets

13.1 By 2020, priorities for the conservation of plant genetic resources have been identified and are addressed by programmes to promote in situ conservation.

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

This is a difficult target to assess as most important plant species (i.e., crop species and orchids) have mostly been identified for seed protection and storage and research is an ongoing activity. A new programme with FAO is expected to fill knowledge gaps for unknown or underused species and for in situ conservation. Material seed transfer agreements have been implemented. No data were reported for forest species. There is a large number of ex situ gene conservation programs

EN

that are ongoing.

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

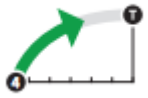
Level of confidence of the above assessment

Interviews with Agriculture personnel, including from the Seed Bank, indicated substantial ongoing work towards this target. Several recent publications support their assessment. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

13.2 By 2020, ex situ conservation gaps have been addressed through collaborative research and collection programmes



2018 - On track to achieve target

Targets

13.2 By 2020, ex situ conservation gaps have been addressed through collaborative research and collection programmes EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

This is a target for which Myanmar has been highly active through seed collections and storage and collaborative research programs. EN

Indicators and Activities

Indicator(s)used in this assessment

Number of accessions to seed bank, numbers of collaborations. EN

Any other tools or means used for assessing progress.

Scientific papers produced, web-based searches, and interviews with staff. EN

Level of confidence

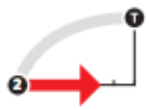
Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Good quality indicators and strong information from staff. EN

13.4 By 2020, incentives and programmes to conserve the genetic diversity of livestock are established to address current gaps



2018 - No significant change

Targets

13.4 By 2020, incentives and programmes to conserve the genetic diversity of livestock are established to address current gaps EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There is an ongoing study to improve genetically Mithun cattle, including work on natural habitats and food. Few publications on improved livestock were found. EN

Indicators and Activities

Indicator(s)used in this assessment

Number of studies; number of journal papers. EN

Any other tools or means used for assessing progress.

Number of journal papers published, information from agencies. EN

Level of confidence

Level of confidence of the above assessment

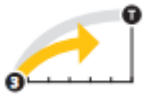
Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Few publications available. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)



2018 - Progress towards target but at an insufficient rate

Targets

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Considerable work is ongoing, especially in river ecosystems and the ecosystem classification program has only recently started. However, past work from WWF, information from global databases on forests, and current mapping initiatives have greatly improved knowledge about ecosystem types in Myanmar, especially at a local level. No country report on ecosystem services and trends has been assembled, except for water services provided by WWF in a report by Wolny et al. (see attached).

This is the only ABT that specifcally addresses women. As a result a gender and conservation report for Myanmar is attached here.

EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

There has been considerable progress, especially on the Ayeyawady River basin, in understanding pollution loads, however, other than a study on rice yields relative to pollution, little information was available for most other ecosystem types (see Targets 5, 7, and 15 for other information on forests and fisheries).

EN

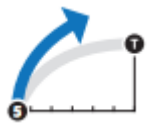
Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Other relevant website address or attached documents

Gender aspects for Myanmar 6th National Report.docx

15.1 By 2020, over 130,000 hectares of forest have been placed under community forestry



2018 - On track to exceed target

Targets

15.1 By 2020, over 130,000 hectares of forest have been placed under community forestry	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to exceed target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The target area has been exceeded in 2018. Several NGOs (RECOFTC, FFI, BANCA, WWF), government, and FAO have all contributed to the effort to organize and train community forest user groups. Overall this is providing a very successful mechanism to promote sustainable forest management, which includes the conservation of habitat for biodiversity.	EN

Indicators and Activities

Indicator(s)used in this assessment

Data on numbers of CFs, area managed by CF, and number of CF people trained are used as the indicators. EN

Any other tools or means used for assessing progress.

Online reports, government data, and data from NGOs and IGOs. EN

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The indicators for this target are robust. (see also Targets 5 and 7) EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

Area of community forests are summed by government. EN

15.2 By 2018, guidelines for a national forest restoration programme that incorporates best international practice formally adopted by government and pilot project initiated

2018 - Progress towards target but at an insufficient rate

Targets

15.2 By 2018, guidelines for a national forest restoration programme that incorporates best international practice formally adopted by government and pilot project initiated EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The target calls for guidelines, although there is a national reforestation program with area objectives, but no national guidelines for reforestation are available. Guidelines and workshops for mangroves have been completed and Forest Department staff provide re-planting technical assistance to community forests. NGOs, including BANCA, FFI, and WWF have worked with the Forest Department and local communities to develop nurseries and replant mangroves.	EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

No national guidelines have been produced as yet but there are pilot projects in mangroves.	EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

15.3 By 2020, REDD+ Readiness Road Map is actively being implemented

2018 - Progress towards target but at an insufficient rate

Targets

15.3 By 2020, REDD+ Readiness Road Map is actively being implemented EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The roadmap is complete but many of the major components have not yet been implemented and implementation would not be possible by 2020. Also there are no REDD+ forests projects active in Myanmar. EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

Information from REDD staff and Myanmar REDD+ website. EN

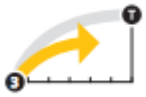
Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

Data on REDD website. EN

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar



2018 - Progress towards target but at an insufficient rate

Targets

16.1 By 2020, the Nagoya Protocol Is actively implemented in Myanmar	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Myanmar has expended considerable effort to lay the groundwork for the implementation of the Nagoya Protocol (NP), although the NP will likely not be implemented after 2020. The NBSAP provides 7 actions, or measures, that Myanmar is following in preparation for implementing the protocol. There has been progress on all of these but at a slower rate than anticipated. Nevertheless, progress has been made through negotiations, training and implementing SMTAs for the movement of seeds. Myanmar hasn’t formulated yet any domestic measures and procedure to access to genetic resources for their utilization, conditions and provisions of access and benefit sharing negotiated between the user and provider and involving other stakeholders. The Ministry of Natural Resources and Environmental Conservation has initiated ABS related projects with funding from UNEP-GEF and UNEP-China Trust Fund during 2013 and 2016, respectively, in order to build capacities in implementing CBD provisions on ABS and in developing and implementation of National ABS Framework in Myanmar. That National ABS framework is also draft. Now we will be more strengthen to develop this framework. Myanmar has initiated ABS related projects with funding from UNEP-GEF and UNEP-China Trust Fund during 2013 and 2016, respectively, in order to build capacities in implementing CBD provisions on ABS and in developing and implementation of National ABS Framework. The Global ABS Project “Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol”	EN

specifically aims at assisting countries in the development and strengthening of their national ABS frameworks, human resources, and administrative capacities to implement the Nagoya Protocol. The implementation of the project started from 2017 and extends to 2019..

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

There has been considerable activities for implementation, including translating the NP into Myanmar language. It appears that Myanmar will miss this target but only by 1 or 2 years. EN

Adequacy of monitoring information to support assessment

No monitoring system in place

17.2 By 2016, the institutional mechanisms to ensure effective implementation and monitoring of the NBSAP are in place and functioning effectively

2018 - On track to achieve target

Targets

17.2 By 2016, the institutional mechanisms to ensure effective implementation and monitoring of the NBSAP are in place and functioning effectively EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

A national NBSAP committee (NBCC) was formed with members from relevant departments and is functioning to ensure implementation of the NBSAP. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Considerable progress has been made on most aspects of the revised NBSAP, including many measures that were not originally priorities. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

17.4 There is an improved national awareness of the NBSAP as a result of the application of a communications plan

2018 - On track to achieve target

Targets

17.4 There is an improved national awareness of the NBSAP as a result of the application of a communications plan EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The communications group has used a variety of flyers, training sessions, and documents to improve awareness of the NBSAP. In addition information was made available to parliamentarians with respect to passing the new biodiversity and protected areas law and the new forest law.

EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

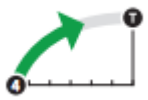
Availability of materials.

EN

Adequacy of monitoring information to support assessment

No monitoring system in place

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational



2018 - On track to achieve target

Targets

18.1 By 2020, customary land use tenure systems has been recognized in Myanmar's legal framework and a mechanism for recognizing communal tenure Is operational

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

29 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

In both the Land Policy and the as yet incomplete land law, as well as in the Biodiversity and Protected Areas Law, there are sections that support the legal recognition of customary land use tenure. The new Forest Law enables community forest management. Of the four Actions (measures) in the NBSAP, only the first has been completed in 2018 but the legal framework is in place. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

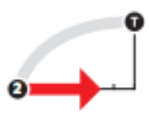
Level of confidence of the above assessment

Laws and policies completed and in process. EN

Adequacy of monitoring information to support assessment

No monitoring system in place

18.3 By 2020, traditional knowledge documented, recognized, promoted, and protected through incorporation into education and conservation outreach education



2018 - No significant change

Targets

18.3 By 2020, traditional knowledge documented, recognized, promoted, and protected through incorporation into education and conservation outreach education EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

One consultation was held for a protected area. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

There has been some work started. EN

Adequacy of monitoring information to support assessment

No monitoring system in place

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology

2018 - On track to achieve target

Targets

19.3 By 2020, leading Myanmar universities have established post-graduate courses in conservation biology EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Several Myanmar universities now have courses in conservation science, including marine ecology. Several training gaps were identified and filled by working directly with three different universities (e.g., see 10.1.2). MONREC has established a program of improving the qualifications of staff by funding employees at the master's and doctoral levels, and NGOs fund students to foreign schools to study. For example, Australia has a program in place to fund post-secondary students education as well as assisting collaborations between Australian and Myanmar universities. EN

Indicators and Activities

Indicator(s)used in this assessment

Count of the number of universities meeting the criterion and numbers of students graduating. EN

Any other tools or means used for assessing progress.

Information from government departments, online searches. EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

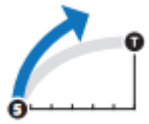
Now 5 major universities offer conservation-related degrees. Data from one EN

university showed a large number of graduates in 3 years.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

20.1 By 2020, the funding available for biodiversity from all sources is increased by 50%



2018 - On track to exceed target

Targets

20.1 By 2020, the funding available for biodiversity from all sources is increased by 50%	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to exceed target

Date the assessment was done

26 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Of the three proposed actions under this target, none has been completed and all are in progress. Nevertheless, funding through the NWCD office alone has increased by 65% since fiscal year 2014-15. No other departments reported their budgets for biodiversity work. The OECD data on ODA received into Myanmar for natural resources issues (forests, fisheries, biodiversity, environmental protection, etc.) indicated that funding has had a high variance over the past 6 years, but remained stable during the 3 years from 2014-2016 (data for 2017 were not available). The amounts of funds expended by NGOs has clearly risen during this assessment period, based on the increased presence of staff and projects. In addition, at least	EN

one new international NGO, The Nature Conservancy, is now active in Myanmar. GEF funds expended in Myanmar has risen from $US 26.3 million prior to 2015 to 34.3 million under GEF 6, an increase of 30%.

Indicators and Activities

Indicator(s)used in this assessment

Government conservation budget, IECD ODA for biodiversity, and GEF funding reported. EN

Any other tools or means used for assessing progress.

None EN

Relevant websites, links, and files

ODA data
OECD compiled development aid to Myanmar 2011 2016.pdf

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

Indicators are robust. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

20.2 By 2018, donor and partner funding for biodiversity is better coordinated and implemented

2018 - On track to achieve target

Targets

20.2 By 2018, donor and partner funding for biodiversity is better coordinated and implemented EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

GEF funding coordination is in place, and a new committee (Environmental Sector Coordination Group) has been established, chaired by the Minister of MONREC to better coordinate programs and projects in the environmental arena. This high level group has met on an annual basis for 2 years. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

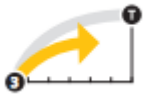
Level of confidence of the above assessment

Good coordination is now being developed as a result of the Committee’s work. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

10.2 By 2018, destructive fishing practices in coral reef areas banned and effectively enforced



2018 - Progress towards target but at an insufficient rate

Targets

10.2 By 2018, destructive fishing practices in coral reef areas banned and effectively enforced	EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

The BOBLME project, in 2014 concluded that coral reef health in the Myeik Archipelago was significantly impacted due to a combination of coral bleaching events, dynamite fishing, and excessive sustained fishing pressure. Of these, the impacts of dynamite fishing are the most serious. These, along with other forms of Illegal, unreported and unregulated fishing are the major threats to the Myeik Archipelago’s reefs. Pervasive use of explosives, poisons, and drift nets and targeting of high-value species like sharks and groupers has devastated the fish populations and destroyed the corals that support marine productivity. The result is once vibrant coral communities have been replaced by algae and sea urchins with a very low diversity nand low biomass populations of low value fish. However, few measures have been taken towards achieving this target for reef protection so far under this NBSAP period, except for the 3 LMMAs and planning for other CFiUGs (see Targets 6.1 and 10.1).	EN

Indicators and Activities

Indicator(s)used in this assessment

Number and area of LMMAs, MPAs and enforcement actions taken.	EN

Any other tools or means used for assessing progress.

Web-based searches	EN

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

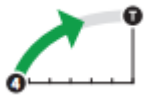
Level of confidence of the above assessment

No measures (actions) were reported aside from the establishment of 3 LMMAs. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

17.1 By 2016, the NBSAP is adopted by Cabinet as the nation's over-arching policy framework for the conservation and sustainable use of biodiversity



2018 - On track to achieve target

Targets

17.1 By 2016, the NBSAP is adopted by Cabinet as the nation's over-arching policy framework for the conservation and sustainable use of biodiversity EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

How informed parliamentarians and specifically the cabinet members are, is EN

uncertain. . Nevertheless, the NBSAP is referred to as a part of the National Sustainable Development Plan (2018). The cabinet is responsible for funding departments and departmental budgets for environmental issues has generally increased, suggested parliament supports the implementation of the NBSAP. The NBSAP is an integral part of the workplan of several government departments as is clear from the ongoing efforts reported in this 6th NR.

Level of confidence

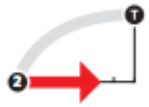
Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

Interviews with staff and data from departments. EN

17.3 By 2020, BSAPs are under preparation in at least three states/regions.



2018 - No significant change

Targets

17.3 By 2020, BSAPs are under preparation in at least three states/regions. EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

There has been no progress towards this target. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

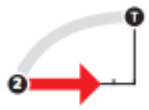
Level of confidence of the above assessment

No progress reported. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed

18.2 By 2020, FPIC principles are institutionalized in government, private sector, and donor programmes



2018 - No significant change

Targets

18.2 By 2020, FPIC principles are institutionalized in government, private sector, and donor programmes EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Little information is available on the FPIC agenda, but of the four Actions planned, some have been planned but none is yet complete. Two proposed national parks are stalled while FPIC is in process and it is a cornerstone of REDD+. The Nagoya Protocol will not be in place until after 2020 EN

Level of confidence

Level of confidence of the above assessment

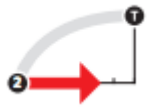
Based on expert opinion

Level of confidence of the above assessment

Government is well aware of FPIC and has applied it in the attempted creation of national parks, however no clear policy was reported. EN

Adequacy of monitoring information to support assessment

Monitoring is not needed



2018 - No significant change

Targets

EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

No significant change

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

No information available. EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

No data. EN

Adequacy of monitoring information to support assessment

No monitoring system in place

19.2 By 2020, a national forest cover change 2015-2020 database developed using international standard methods, and made publicly available online

2018 - Progress towards target but at an insufficient rate

Targets

19.2 By 2020, a national forest cover change 2015-2020 database developed using international standard methods, and made publicly available online EN

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

30 Aug 2018

Summary of the assessment of progresses toward the implementation of the selected target

Forest Department may have a cooperative project with FAO to produce a digital assessment and inventory of Myanmar forests but the work has yet to begin. Myanmar will report on forests for the FRA 2020. EN

Indicators and Activities

Indicator(s)used in this assessment

FRA data EN

Level of confidence

Level of confidence of the above assessment

Based on expert opinion

Level of confidence of the above assessment

GIS section of Forest Department working with FAO. FRA report will be completed with all forest data by 2019 EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Section IV. Description of national contribution to the achievement of each global Aichi Biodiversity Target

1. Awareness of biodiversity values

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

Myanmar’s NBSAP calls for a several-pronged approach to improving awareness of biodiversity in the country, including through educating politicians, increasing awareness through the childhood education system, the university education system, and by educating the media and the public. The country has moved forward considerably in most of these areas, recently passed a new biodiversity and protected EN

areas law and a new forest law, and is in the process of re-writing its land law. These three laws combined will improve both the conservation of biodiversity, enable community user groups, but also require people to become more aware of issues related directly biodiversity. Considerable effort has been made to educate politicians in several of the states, as well as at the national level, which enabled the enactment of the “Biodiversity and Protected Areas Law”, in 2018. This law is designed to improve awareness of biodiversity and ecosystem services. Biodiversity is also promoted with information displays and brochures at all national parks and people near protected areas, including the Ramsar sites, are being educated on the importance of maintaining biodiversity for both services and tourism. A major effort has been made to promote sustainable ecotourism, with the development of standards for the industry, national policies and the education of people in the industry. Myanmar has developed an ecotourism policy, published in 2015, recognizing the value of biodiversity and protected areas as a means to develop and promote a non-consumptive industry based on its unique natural history values. The policy has 14 objectives designed to improve management of protected areas, involve local communities, increase tourism, and increase economic benefit from protected areas, recognizing the importance of protected areas for conserving biodiversity. The Myanmar Ecotourism Policy and Management Strategy on strengthening protected area management is aligned with the National Forest Master Plan (2001-2030), the National Biodiversity Strategy and Action Plan 2015-2020, and the Biodiversity Conservation Investment Vision (Wildlife Conservation Society 2013). There have also been efforts to form community user groups that have been provided training in conserving biodiversity, in both forestry and fisheries management. Some of these groups are undergoing certification that, in part, requires an understanding of ecosystem services and how to use biodiversity in a sustainable manner. Myanmar has made an increased effort to enable public understanding of the important role that poaching and illegal timber harvesting play in degrading biodiversity and hence ecosystem services. These efforts involve formal community groups, as well as targeted public training sessions in areas most affected by illegal activities, including working directly with neighbouring countries on joint enforcement and awareness programs (India, China, Thailand). Finally, a number of key biodiversity references and documents have been translated into Myanmar language and made available to the public, including both the tiger and elephant action plans. Most of these efforts are new and so there are no good indicators of success. A check of Google searches revealed no increase for biodiversity or associated terms, but this may be a search language issue, hence this may not be a good indicator. The Biodiversity Barometer had no relevant information. One area that apparently needs work is incorporation of biodiversity or conservation issues into primary education; a survey of Yangon schools found no conservation issues in any of the school curricula.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Myanmar participates in all ASEAN groups (https://environment.asean.org/awgncb/), including the ASEAN Centre for Biodiversity (https://aseanbiodiversity.org/), where	EN

biodiversity and other environmental issues are discussed and regional projects are initiated. Myanmar has been involved in several transboundary projects, whose aim has been the protection of biodiversity, including the BOBLME project with several adjacent coastal nations, the International Tropical Timber Organisation (ITTO) Taninthayi forest transboundary project with Thailand, and on several biodiversity research projects partnered with China, Germany, and Republic of Korea.

2. Integration of biodiversity values

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

Efforts have been made to raise the awareness of legislators at the state and national level, as described under Target 1. Myanmar is moving towards natural capital accounting and although this will be a lengthy process, several reports have assessed ecosystem service values, for example from forests, as a part of the effort to begin to better value natural capital. The forests study indicated that there are considerable economic benefits to be gained from investing in forest conservation and sustainable use, rather than continuing to degrade and deforest, as in the past. In an effort to highlight the importance of biodiversity, advances are being made in the area of environmental impact assessment, with staff training and new guidelines for public participation in these processes. More than 36 training sessions have been delivered to national and regional government staff, as well as to businesses in Yangon and Mandalay on environmental impact assessment. In sectoral planning, the hydro-power industry and tourist industry have been the foci so far with respect to efforts for biodiversity conservation, but work with the mining and oil and gas sectors is ongoing, and there is a 'Marine Spatial Planning' document that represents a start on better coastal and marine fisheries planning. An SEA was completed for the hydro-power industry, including a section on biodiversity issues, and another is planned for the mining industry. As noted above for Target 1, people living close to protected areas are being trained on the importance of conserving biodiversity values and in some cases given assistance with alternative livelihoods. Several NGOs work directly with industry in an effort to mainstream environmental issues, such as the 'Myanmar Centre for Responsible Business' (MCRB), which has prepared a series of biodiversity briefing papers for Myanmar's key industries. National biodiversity databases are being developed including corridors, forests, protected areas, etc., to improve the planning capacity for developments. Mapping of protected areas, KBAs, and corridors have been completed to assist with large-scale planning of development. (None of the suggested global indicators in the UNDP Technical Manual were helpful for Myanmar for Target 2.)	EN

3. Incentives

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The efforts in Myanmar towards ABT 3 primarily involve working towards clarifying the national legal framework to encourage conservation through tenure rights, including community tenure and management rights, especially for fisheries and forests. As a result, the Forestry Law has been rewritten, in part to enable community management of forests and to recognize local rights. The Land Law is also being redesigned to enable local land tenure. Clarification of tenure will enhance the probability of success of forest restoration programs, including those to be developed under REDD+. While Myanmar subsidizes the energy, livestock, rubber, and agriculture sectors, little work has been done on the environmental issues associated with these subsidies. A report by Kenney-Lazar and Wong (2016, CIFOR Info Brief No. 154), however, indicated considerable impacts on biodiversity from subsidized rubber plantations. In forestry, a small area of land is certified by international organisations and a few community forests have also been certified, although Myanmar is working towards increasing the area of forest managed that is certified. No incentives other than enforcement are used to implement the CITES Convention or Ramsar Convention in Myanmar.	EN

4. Use of natural resources

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The over-arching framework for sustainable development is the Myanmar Sustainable Development Plan, 2018-2030 (link attached), which recognizes the important role that biodiversity plays in providing ecosystem services. In an effort to improve business practices in the resources sector, Myanmar has begun developing sectoral SEAs and improving the EIA process. An SEA for the hydropower sector was completed (see Target 2) and an SEA for the mining sector is planned and a draft guidelines were produced in 2018. A key aspect to the hydro SEA report, and a key measure determining possible dam locations, is the potential effects of hydro developments on aquatic and terrestrial biodiversity. EIA training has been provided to a large number of government employees. Another business area with considerable improvement, from an environmental perspective, is the ecotourism sector, as a result of new policies and guidelines, and training provided to protected areas staff. Special consideration is given to tourism in and near Myanmar’s protected areas because of the critical role that these special areas have in promoting local, national and global sustainability. Myanmar is very interested in expanding its ecotourism sector, but not at the expense of damaging protected areas or reducing biodiversity, and as a result significant effort is being expended to ensure sustainability and protection. Overall, the Global Footprint indicator for Myanmar suggests that resources use is still	EN

on average sustainable (up to 2016 and figure below). Relative to its neighbours, with the exception of near cities, human impact overall in Myanmar is low but demand on resources continues to grow with development and population growth. Much of the low impact indicated, however, is as a result of difficult terrain in mountains. The forestry and fisheries sectors are discussed elsewhere (Targets 5, 6, and 15), but for these two sectors, resource use remains unsustainable, based on the increasing rate of marine fish harvesting (see Target 6.2), necessary reduced teak quotas, and the high deforestation rate, including in mangroves (see Target 5.1), with the loss of almost a million ha of forest (using 30% canopy) from 2015-2017 (WRI Global Forest Mapping). A report on forests by Kissinger (2017) indicated that the main cause of forest loss is agriculture clearance and that the current annual deforestation rate is close to 2%. In mangrove forests, the global data show declines of about 2200 ha/year to 2015 and 1300 ha/yr after that, and recent government projections show further losses of >70% of mangrove cover in Ayeyawady Delta region alone by 2030. Progress is being made, however, towards maintaining and restoring habitats, especially in the forest sector where increasing community forestry has become a pillar of the country's approach to improving forest management. There has been an increase in forest areas managed by communities of >130,000 ha (see Target 15) and forest harvesting moratoria in some areas, as well as a very reduced quota for teak harvesting. The national mangrove action plan, for example, calls for 28,000 ha of mangrove to be planted in the Ayeyawady area by 2027, along with another 1690 ha elsewhere. In part, this effort is to recover lost forests but also to develop shoreline protection from cyclones. There is also progress towards a national reforestation programme in other forest types of more than a million hectares by 2030 under the Myanmar Reforestation and Restoration Programme, including through REDD+, and work continues on developing a VPA under the EU Forest Law Enforcement Governance and Trade (EU-FLEGT) process. PEFC has a new forest certification project in Myanmar, together with the Myanmar Certification Committee, focussing on demonstration areas, developing a knowledge platform, and developing supply chain verification.

Wildlife conservation is another continuing problematic resource use area, owing primarily to illegal harvesting, especially of elephants, pangolins, large cats, and other large mammal species (see Target 12 for data). Myanmar has no "bushmeat management plan", but a management plan for elephants was adopted in 2018, in response to information that populations are continuing to decline significantly. Wildlife harvest controls are at the national level but the small enforcement budget reduces overall success of these programs. A particular conservation effort aimed at turtle species has had a large and successful impact through captive-rearing and release programmes, which, along with public education, have increased several species' populations (see Target 15.1).

In 2015, the FAO recognized Myanmar as one of 72 countries that has reduced its population of people suffering from hunger in half (a Millennium Development Goal). The agriculture industry in Myanmar accounts for a majority of the country's income and is its largest source of employment, so sustainability is becoming an increasingly

important aspect. There are many recent programs in Myanmar aimed at increasing the sustainability of agriculture, including farmer training, access to imported fertilizers, and enhancing possibilities for rural people to improve techniques. For example, IFAD began a strategic program in 2014 to improve the livelihoods of rural farmers through sustainable agriculture programs, FAO has a new program to support for sustainable agriculture and rural livelihoods in Northern Rakhine State, and multiple ODA agencies (Japan, Korea, EU, etc.) are contributing to improving the sustainability of agricultural practices. No data on total area with improved sustainability or total numbers of people trained were available, although the Ministry of Agriculture alone has trained >1300 people (53% of whom were women) over the past 3 years, and the intention to improve the sustainability of agriculture, while reducing rural poverty, is a national goal.

Agricultural genetic resources (see Target 13) have been of particular interest in Myanmar with a long-established seed bank and research program. The seed bank increases its accessions each year, with more than 600 new accessions since 2015. In addition, there are now more than 2400 Myanmar seeds stored internationally. Among the stored seeds are many species of wild orchids, which are an important ornamental species subject to regulation in Myanmar. While there is no in situ conservation programme in place, there are large wild rice populations in Myanmar (Indawgyi Lake in Kachin, Moeyungyi in Bago, many populations in Ayeyawady, Bago, Yangon, Mon, Kayin, Taninthayi and Yakhine states), there is consideration that some of them need to be conserved in situ. There is an ongoing active research programme, with collaborations between the Agriculture Research Section and national and international universities, as well as an active programme with FAO; the latter to assess under-used species has just been started. A recent publication on the Medicinal plants of Myanmar by DeFillips and Krupnick (2018), highlights the importance of plants used as traditional medicines.

Myanmar has an updated list of Key Biodiversity Areas (KBAs) (see figure below) and proposed national parks that are mapped and that both provide guidance to resource managers. KBAs are mostly areas of special importance to species and the IUCN ‘Red List Index’ (IBAT 2016) illustrates a continued decline for Myanmar vertebrate species (see figure attached). IBAT also complied a list of important drivers of species population declines (see attached figure), and indicated that the major factors are: over-exploitation, land-use change, habitat loss from forestry, and pollution. The IUCN Red List for Myanmar keeps growing in number of species listed (see Target 12), suggesting that increasing development and population growth is having an impact at the species level but also, in part, because there has been a greatly increased emphasis on species since the implementation of the NBSAP in 2010 and the establishment of IUCN-trained specialist groups. For example, three new gecko species were recorded in Taninthayi in 2017.

Links:

Myanmar Sustainable Development Plan http://mya.gms-eoc.org/uploads/resources/

3122/attachment/ENG%20-%20MSDP%20%282018-2030%29.pdf

Red List Index for Myanmar (2015)

5. Loss of habitats

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This target repeats again much of what was reported under Target 4. Myanmar has done well in inventory and protecting wetlands through the Ramsar process, with four new sites named over the past 3 years. However, in forests, Myanmar has been unable to meet this global target and, along with several other countries in Central and SE Asia, has a very high deforestation rate (1.4% in 2016 and almost 2% on average from 2005-2015) (FAO 2015, Kissinger 2017). Myanmar lost more than 300,000 ha/yr of forest between 2005 and 2018 (WRI Global Forest data, see figure) and intact forest landscapes were reduced by 31% from 2001-2013, with a loss of >112,000 ha/yr to 2017 (Potopov et al. 2017, Figure), and the current loss of 1300 ha/yr of mangroves (see figure). Loss of intact forests and deforestation also has the effect of reducing landscape connectivity. The largest driver of forest loss has been from agricultural clearing, including for rubber plantations, oil palm, rice, and jatropha, followed by sugarcane, and cassava (Kissinger 2017). Illegal logging has also resulted in huge forest losses (and consequently lost tax benefits). The Environmental Investigation Agency indicated that, from 2001-2013, 10.2 million m^3 of Myanmar logs exported to global markets were not authorised, which would equate for a 47.7% illegal logging rate in the country relative to legally exported wood alone (Kissinger 2017), and the same agency reported 233,484 tonnes of illegal wood were seized between 2010 and 2016. A third main cause of forest change has been fuelwood harvesting. The amount of biomass for fuelwood harvested in Myanmar has steadily increased and is several times higher than the actual volume of legal logging. Fuelwood extraction for the

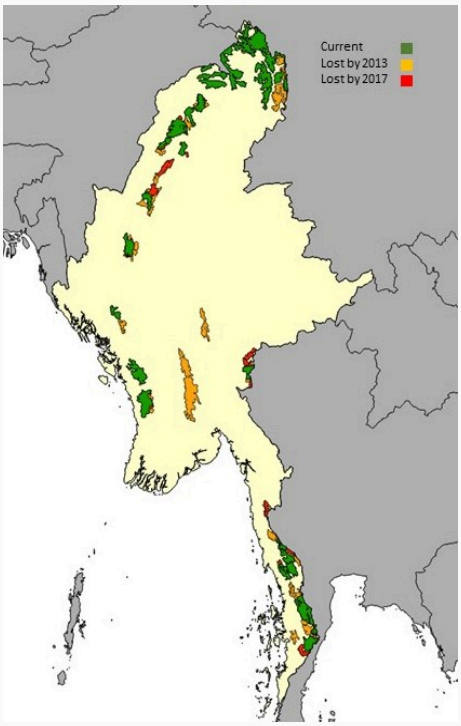
EN

period of 2000/01 to 2012/13, in fresh biomass was estimated to be 68-86 million m^3 annually, of which between 48-60 million m^3 was from natural forests, 17-21 million m^3 from trees on farmland, and only 3.4-4.3 million m^3 from fuelwood plantations (Kissinger 2017). Land cover change data at the national level for 2005 to 2015, developed by the Forest Department RS-GIS Department, showed that 136,500 ha (27%) of mangrove forests changed to 'Other Land Use' (mainly cropland), 90% of which occurred in the Ayeyawady and Rakhine regions and further declines were predicted for these two regions.

Among the ecoregions, those with the greatest loss through deforestation over the period 2014-2018 include: the IndoChina Subtropical zone, which also supports a very high number of rare species and endangered species (see UN Biodiversity Lab Maps under Target 12), which lost nearly 337,000 ha. This ecoregion is a very large area in the east-central portion of the country, bordering with Thailand, which has almost no protected areas (see figure under Target 11 Implementation). These data indicate the need for future protected areas in the ecoregion owing to high habitat loss, high numbers of rare species, and high number of endangered species. Other ecoregions suffering high forest habitat loss over the past 4 years include Kayah-Karen montane rain forests (131,026 ha), Mizoram-Manipur-Kachin rain forests (112,793 ha), and the Chin Hills-Arakan Yoma montane forests, which lost 77,180 ha.

There are numerous NGOs active in Myanmar, working with local communities to improve the sustainability of use of biodiversity resources, in forests, mangroves, reefs and along waterways. Programs under development assistance are improving mangrove management, working towards forest certification and improving livelihoods among the poor to ultimately protect biodiversity. To deal with the declining forests, Myanmar legislated a raw log export ban in 2014 and more recently (2016/2017) a 10-year logging ban in the Pegu Yoma region, which is an important area for elephants, and reduced the teak quota. Myanmar is also working towards a Voluntary Partnership Agreement (VPA) under EU-FLEGT. Further, the National Forestry Master Plan (2001-2030) set objectives of 30% of land as a permanent forest estate (PFE) and 10% of land (presumably forest) in protected areas by 2030. There is also a national plan to recover forest habitats (see Target 15), as well as a revised enforcement plan but, unfortunately, no increase in the associated budget. The new Biodiversity and Protected Areas Law substantially increases penalties for illegal activities, and there is a major effort to bring forests under community management (see Target 15). Nevertheless, large amounts of teak and rosewood continue to be cut and illegally exported, according to the government statistics (see Target 5 – under Implementation), as well as a Mongabay investigation in 2015-16. (https://news.mongabay.com/2016/11/myanmars-logging-ban-feeds-shadow-economy-of-illegal-trade/).

Intact forest loss to 2017 (P. Potopov)



6. Sustainable fisheries

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

Myanmar has made efforts towards reducing the wild harvest of marine fish, in part through the increased use of aquaculture, improved enforcement, reduced fishing season length, establishment of 3 LMMAs, and registration of vessels. Nevertheless, the marine harvest has increased each year by an average of 152,000 metric tons/year (Myanmar government data, attached figure) since the NBSAP was put in place in 2011, including after it was revised in 2015 through to 2017. (The FAO SOFIA data are estimates only and so are not of any value here.) Few data are available for individual species and considerably more research is needed to understand the marine ecosystem, its productivity, which species may be over-fished, and what constitutes a sustainable catch limit for common species. The IUCN lists 44 fish species (including rays and sharks) as either critically endangered (2 species), endangered (13), or vulnerable (29). It is well-known that there is a large and lucrative illegal fishery by both national and foreign vessels in Myanmar territorial waters that has been difficult to control. Enforcement and management are in separate departments, making management problematic. Further, global ocean impact mapping clearly shows a very high impact over most of Myanmar's territorial oceans, indicating high fishing pressure, pollution and reef damage (see attached figure). One effort in overcoming the illegal fishing has been the effort to install LMMAs, now successfully established in three areas covering >10,000 ha in the Myeik area, and with plans to establish more, especially in Rakhine State. However, no new marine protected areas have yet been announced. Information on aquaculture is provided under Target 7.	EN

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Myanmar contributed to the BOBLME ocean research project in the Bay of Bengal and Andaman Sea.	EN

7. Areas under sustainable management

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This AB Target is in three parts: forestry, agriculture, and aquaculture (and therefore duplicates, in part, Targets 4 and 5), although the National Targets for ABT 5 did not include forestry. Forestry: Myanmar has its own forest certification system (led by the Myanmar Forest Certification Committee - MFCC), and is currently working with the Program for the Endorsement of Forest Certification (PEFC) to move towards a sustainable forestry sector. Currently only a small area of community forest (CF) is certified but training is being provided to other CFs to enable certification. No other industrial forest concessions have been certified as sustainable. The PEFC project has field tested Myanmar's timber legality assurance system (MTLAS) and the project partners have also created a national documentation system and conducted auditor training. MFCC has a multi-stakeholder platform to facilitate coordination and that acts as a central hub for partners to share experiences, project findings, tools and best practices. It also provides a network for stakeholders to access technical support for pilot testing certification solutions. Parallel to the PEFC project, there is also certification work as a part of the REDD+ initiative and under EU-FLEGT. Agriculture: The Department of Agriculture conducts regular training in various disciplines to improve farming techniques, reduce the use of pesticides, and develop climate-based cropping. Over the NBSAP period to May 2018, MoALI had trained several thousand farmers on various aspects of sustainable farming and has conducted successful research into improving rice varieties. A 5-year project entitled "Sustainable cropland and forest management in priority agro-ecosystems of Myanmar (SLMGEF)" is being implemented by FAO, MoNREC and MoALI, with GEF funding. The project facilitates adoption of Climate-Smart Agriculture (CSA) policies and practices that help to sustainably increase productivity, enhance resilience and reduce/remove greenhouse gas emissions. A key effort towards sustainability is the preservation of genetic diversity including in situ, exploring under-used species, and protecting wild crop relatives and Myanmar now has programmes in place to deal with all three. Myanmar has more than 12,000 crop species accessions in cold storage and more than 2400 accessions in long-term international cold storage systems. Research is ongoing with many national and international institutes (especially in Japan) and a new program with FAO to identify under-used species has recently been funded. Efforts are being made towards improving yields on the same land base through increasing mechanisation at 119 training centres in the country and IFC is supporting a program to improve floating tomato production practices at Inle Lake. Aquaculture: The Department of Fisheries has established the 'Good Aquaculture Practices Extension Team' in 2016, to improve techniques of fish-farmers at all of the aquaculture sites in the country and to provide other extension activities and auditing practices at certified farms. Myanmar has embarked on two recent programs to make shrimp aquaculture more sustainable. These programs involve reclaiming mangroves	EN

and using more sustainable shrimp farming techniques and, under the MYSAP program, the Fisheries Department has already established best practices at 17 shrimp farms (note: there are hundreds of aquaculture farms, although there are a relative few large farms, on 184,000 ha in Myanmar). In addition, improving freshwater aquaculture practices has been an ongoing program for several years, with programs run under the Fisheries Department with ODA from, for example, the EU and Japan. For one of these programs, the Department of Fisheries with JICA has an extension service for small-scale aquaculture which began in 2009 and is still active. The JICA project trains farmers and enables them to train others in the same regions for improving aquaculture practices. Aquaculture accounts for only about 20% of the total fishery by weight, in Myanmar, but will likely account for much more in the future as the new programs and laws are instituted.	

8. Pollution

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

A new Pesticide Law (2016) was adopted but it is too early to assess effectiveness. There is considerable work on understanding pollution levels and sources through individual studies, especially along major rivers and the coastline, but no assessments of these pollutants on biodiversity are available and no country-wide study has yet been accomplished. There is an established water quality monitoring network along the Ayeyawady River, but this has not been expanded or included for other rivers during the NBSAP period, although there is a comprehensive water program recently initiated in association with Norway. However, there have been advances in the area of EIAs, with guides and standards produced and circulated, and a large amount of training has been provided to ECD staff on their application.	EN

9. Invasive Alien Species

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

There are a known 97 invasive species in Myanmar according to the Global Invasive Species Database and 267 species listed on the GIASIP Gateway site. Other than a plant quarantine facility at Yangon Airport, Myanmar has been unable to move forward on this target owing to insufficient resources.	EN

10. Vulnerable ecosystems

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This target pertains primarily to coral reefs. For the two specific measures (i.e., NBSAP Actions under 10.2) no information was available and few measures have been taken towards achieving this target for reef protection so far, except for the 3 LMMAs (see Target 6) and planning for other CFiUGs (see Targets 6.1 and 10.1). Global data clearly show very high impacts along much of the Myanmar coast, especially in the Myeik area. Nevertheless, the establishment of 3 LMMAs is a major step forward in both the management and protection aspects for coral protection in Myanmar. Of the 187,000 ha of Myanmar's reefs, about 51,000 ha are protected in Lampi NP and Thamihla Wildlife Sanctuary. The three LMMAs were established to improve management of exclusive management zones along some reefs in the Myeik Archipelago cover another 10,000 ha, adding another 5% reef area into some form of protection. These LMMAs are the first for Myanmar and are part of the management program to protect coral reefs from poor and excessive fishing practices. Total reef protected coverage is about 33% of Myanmar's reefs. In Myanmar, coastal ecosystems are vulnerable to climate change as a result of the continuing loss of mangrove forests (see Target 5 for data) that can serve to protect coastal areas from severe storms (such as occurred in 2008). Mangroves also provide other services such as nursery areas for many aquatic species. While there has been ongoing loss of these systems, Myanmar has an ambitious plan to re-establish some 30,000 ha over the next decade.	EN

11. Protected areas

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

As of 2018, Myanmar has increased its protected area by about 300 km2 under its National Parks coverage. Other parks will possibly be gazetted by 2020, as there are ongoing negotiations and considerable planning. However, additional to these efforts was the more than 1400 km2 that were protected under the Ramsar program at three new sites, and a fourth Ramsar site was announced in late 2018. and Myanmar has also nominated two additional UNESCO sites, although these have yet to be finalized. Myanmar currently has 5.75% of its landbase in national protected areas. Including all other areas, such as Ramsar sites, wildlife sanctuaries, UNESCO sites, etc., then the area under some form of protection is about 8.7%. A revised KBA map was produced and can help guide future formulation of protected areas and connectivity. The data suggest low coverage of KBAs within protected areas (see figure attached). More	EN

generally, some ecoregions are not well represented in protected areas (see attached graph from UN Biodiversity Lab) and large areas with high species rarity in the eastern part of the country are missing any form of protected area. Unfortunately, no new marine PAs were completed, although there is now a marine spatial plan.

In the southern area of the country, bordering with Thailand, there is a new effort entitled “Ridge to Reef”, which is a GEF-funded project attempting to secure several protected areas in from a marine park at the coast through the Lampi Park extension and including the proposed park at Taninthayi. This project, however, has met considerable resistance from local communities and long-term negotiations are still ongoing. At this time, the outcome is still uncertain.

Protected areas in Myanmar (2018)

12. Preventing extinctions

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This ABT has been well applied in Myanmar, with a large number of cooperative research and monitoring projects involving MONREC and several NGOs, including Wildlife Conservation Society, Flora and Fauna International, Oikos, Biodiversity and Nature Conservation Association and WWF, as well as at universities. There is completed and ongoing research on at least 35 individual vertebrate species, many of which are endangered, including several marine species. There has also been some important species-related publications including the Marine Biodiversity Atlas, a study on elephant population demographics at Bogo Yama, and a monumental publication on medicinal plants in Myanmar. Despite this work, the conservation status of most threatened species is unlikely to have been improved yet, however, as a result of

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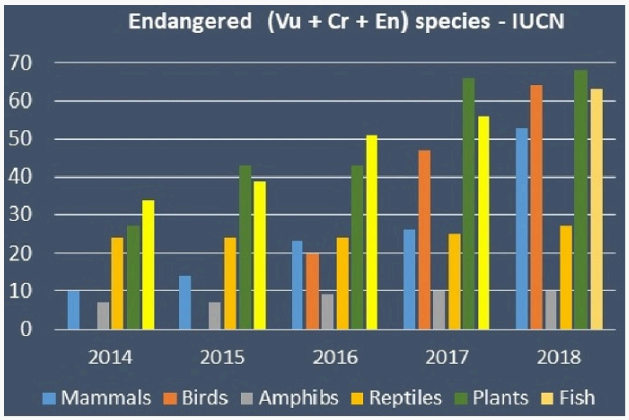
considerable ongoing habitat loss and illegal wildlife harvesting. Nevertheless, a particular good news story has occurred for turtles and tortoises, as a result of successful re-introductions into the wild from ten established assurance colonies and an associated public education programme.

A major step forward has been the enacting of the 'Conservation of Biodiversity and Protected Areas Law' (in 2018). This law has modernised and increased the penalties and provisions for illegal use of wildlife and CITES-listed species, and for illegal activities in protected areas. It represents an important advance in attempting to arrest these illegal activities in Myanmar. There has been a widespread effort to reduce illegal wildlife harvest, but in the absence of an increased enforcement budget, these efforts have undoubtedly been less successful than intended. Among these efforts have been coordination among enforcement agencies, transboundary enforcement programmes with India and China, training sessions for officers and protected areas staff, and a suite of public information programs. There are also now eight alternative livelihood programmes in place, as a part of the effort to reduce illegal wildlife actions. Areas in the north of Myanmar, especially in conflict zones, remain very difficult to police to stop the illegal trafficking of wild animals and their parts.

Myanmar has moved steadily forward on accumulating information needed for listing species under the IUCN Global Red List. Individual taxa-specific expert groups have been formed to assess species and, as a result, more than 4400 species have now been assessed. Numbers of species listed has increased, largely because of improved information and the greater effort at assessment (see attached figure).

Myanmar Species listed on the IUCN Red List



Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Aside from listing species on the global IUCN Red List, there are many other international projects to which Myanmar contributes. For example, the Wildlife Conservation Society (Wildlife Conservation Society) cooperates with international organizations, such as Wetlands International. to research and document waterbird species (migratory and endemic species) in the Mandalay Region, Sagaing Region, and Kachin State for the Asian Waterbird Census. These data have been sent to Wetlands

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International and Birdlife International. Biodiversity and Nature Conservation Association (BANCA) participates with BirdLife and other international organisations in monitoring shorebirds, including the critically endangered spoon-billed sandpiper (Calidris pygmaea) in the Gulf of Mottama. The Gulf of Mottoma is identified as the most extensive and significant intertidal mudflat system in Myanmar for shorebirds, fish and other biodiversity. Its highly productive intertidal mudflats provide a wintering site for an estimated 150,000-200,000 migratory waterbirds. Nanthar island is one of the most important wintering grounds for migratory birds species, including Spoon-billed Sandpiper (CR), Nordmann's Greenshank (EN), Painted Stork (NT), Indian Skimmer (VU), and Great Knot (EN).

13. Agricultural biodiversity

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This target is primarily referring to the conservation of agricultural crop species and genetic diversity of culturally important species, including for wild relatives. Myanmar uses using Standard Material Transfer Agreements and has more than 12,000 crop species accessions in cold storage and more than 2400 accessions in long-term international storage systems, and there is an extensive ex situ gene conservation program in place . Research is ongoing with many national and international institutes and a new program with FAO to identify under-used species has recently been funded. Efforts are being made towards improving yields on the same land base through increased mechanisation at 119 training centres in the country. Seeds from culturally important orchid species have also been collected and preserved in cold storage, both in and out of the country. Mithun are a specific research target to maintain wild relatives, improve habitats, and improve the breed for superior captive production.	EN

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

The Seed Bank has several international collaborations for seed conservation and study with: Bioversity, ITGRFA, FAO, gene banks in Philippines, Norway, Korea, Japan, and works with universities in Japan. (see 13.1.1). The Agricultural Research Department (DAR) collaborates at the international level with Biodiversity International, ITPGRFA, Regional FAO, International gene banks (IRRI genebank in Philippines, Korea genebank, Svalberg Global Seed Vault in Norway, Tsukuba genebank in Japan), and with Tokyo, Tsukuba, Kyushu, and Nagoya Universities in Japan.	EN

14. Essential ecosystem services

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

No single report examining changes in ecosystem services associated with important ecosystems has been assembled. However, loss of forests, including mangroves, indicates the loss of services provided by these ecosystems is ongoing in various parts of the country. In particular, loss of mangroves has resulted in more severe damage from storms than in the past. Nevertheless, the Mountain Green Cover Index for Myanmar is 99%, suggesting that mountain ecosystems are relatively intact, partly owing to remoteness from the major population centres. For freshwater resources, considerable work has recently begun to assess values and services provided by major river basins, including the Ayeyawady, Chindwin, and Hlaing River basins. Data were not yet available from these studies for this report, but the research is assessing how these rivers contribute to the livelihoods of local people and communities. The work along the Chindwin suggested that pollution from mining is already to an extent that important services, like clean water, are harmed. Protection of reefs and coastal areas was covered under Targets 6 and 12, showing that apart from work towards local management areas, little improvement in marine management has been accomplished. The waters of Myanmar also contribute very significantly to the country's economy and provide livelihoods for an estimated 1.4 million inshore and offshore fishers. However, these ocean ecosystem services are under threat as a result of over-fishing and illegal fishing. More information at: https://phys.org/news/2017-02-myanmar-unveils-marine-wildlife-resources.html#jCp This is the only ABT under which women’s issues are specifically mentioned. For Myanmar, a report was appended under Section lll on gender and implementation of the NBSAP. Conclusions from that report are that women are assisting in implementing the NBSAP, often is ways and areas different from men. Among community user groups, women play key roles in maintaining equipment, gathering wood and tending nets, especially in the inshore fisheries. Gender biases, however, remain with respect to wage parity, joining advocacy groups, and travelling to meetings. Further, because of traditional family roles, most women have little time available to travel or attend meetings. Even so, the disaggregated data clearly suggest that women are involved in conservation issues, are willing to improve their skills, and are playing important roles in the implementation of the NBSAP, especially within organised user groups. Overall, among the various training sessions for which gender-based data were available for the 6th National Report, about 50% of the trained participants were women.	EN

15. Ecosystem resilience

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

Target 15 is about both restoration of degraded habitats and also about improving terrestrial carbon storage. Part of Myanmar's efforts to reduce forest degradation is to improve the community management of forests. To that end, now more than 130,000 ha of forests are managed by communities, and there is ongoing training to improve this management. There is a comprehensive forest and mangrove forest restoration plan, the National Reforestation and Rehabilitation Program in Myanmar (NRRPM), aimed at restoring 32,300-40,500 ha/year, including establishing forests, while the plan calls for local residents to recover forests on 283,000 ha, including in community and private plantations. Of the total area to be reforested, about 30,000 ha are mangroves, primarily planned for the Ayeyawady delta. However, no data were available as to how much forest has been restored under the plan. Myanmar has also embarked on a REDD+ program and has a 'roadmap' completed, although no reforestation work has yet been undertaken under REDD+. Myanmar has produced its forest reference emissions level report (2018) indicating that deforestation is causing emissions of 48,607,511 tons C per year. Biodiversity and Nature Conservation Association (BANCA) and the Forest Department established tree nurseries to work with three villages in the Gulf of Mottama on reforestation and bank stabilisation, especially in mangroves, and have provided training to 163 individuals on planting of trees. Flora and Fauna International is working with 15 communities at Indawgyi Lake to help with Community Forestry and agroforestry in the reserve through reforestation projects. They have instituted an efficient cookstove program and planting coppice wood species to reduce timber harvesting for fuelwood. At Taninthayi area, Flora and Fauna International has 3 projects on mangroves management and recovery, one with UNDP through GEF (Mainmala Kyun and Bogalay in the Delta area), and Flora and Fauna International has provided training in mangrove co-management and inventory to 91 people, among whom about 30% were women. Worldview Myanmar Limited (WML) has a project in part to establish mangrove plantations through a series of Mangrove parks with Pathien and Myiek Universities to help restore and protect the mangrove forests through demonstration and research. While Myanmar's NBSAP restoration plan specifically targets only forests, other habitat types are also being restored. For example, the Inlay Lake Conservation and Rehabilitation Project has been implemented by UNDP through funding support from UNDP and the Norwegian Ministry of Foreign Affairs. A five-year plan for conservation and restoration also of Inlay Lake (2010-15) called the 'Greening Project' is being implemented by Forest Department and together with the Shan State Government. **Expected forest recovery after implementing Reforestation Plan**	EN

16. Nagoya Protocol on ABS

Interim national report on the implementation of the Nagoya Protocol

ABSCH-NR-MM-240567-1 National Interim Report

17. NBSAPs

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

Myanmar had an NBSAP in 2011 and an updated version with National Targets was published in 2015, to cover the final period of the CBD Strategic Plan to 2020. This was submitted to the CBD in 2016. This latter version is the subject of this report and has been adopted as policy and as the workplan of MONREC, in particular, the Forest Department that has the major implementing responsibility (62% of the measures). A “National Biodiversity Conservation Committee” (NBCC) was formed to coordinate among departments implementing the NBSAP. As can be ascertained from this report, Myanmar has implemented the majority of the proposed measures (actions) under its NBSAP and more than 70% of the 61 National Targets have been achieved or partially achieved, 2 years prior to the end of the plan in 2020, while work on all targets is still ongoing. In some cases, such as protecting Ramsar and UNESCO sites, targets were exceeded with more area than expected set aside. A key aspect to implementation of the NBSAP has been the enacting of a new law “Conservation of Protected Areas and	EN

Biodiversity Law” that enables a much more strategic and effective approach to natural resources management and land tenure. This law required considerable effort in the National Parliament and was a successful achievement under the strong leadership effort of MONREC from 2016 to 2018. To mainstream the NBSAP into other sectors, Myanmar has implemented a several-pronged sectoral approach, including presentations to public, schools, media, and industry. The NBSAP has provided guidance and policy justification for the implementation of many programs currently being conducted by government and NGOs in Myanmar. At the same time, however, Myanmar has two important targets that are assessed as “Moving away from” in this report, and both of these will require greater effort in the near future (Targets 5.1 for loss of forests and 6.2 for unsustainable fisheries; representing Aichi Targets 5 and 6). Under the national targets for this ABT 17, Myanmar has yet to make progress in the development of state BSAPs.

18. Traditional knowledge

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This ABT is generally about customary use of resources and effective participation of local communities in management decisions. Myanmar has several regional ethnic groups and a very large rural population, spread over in many small communities. Efforts have been made throughout the implementation of the NBSAP and other associated programmes, such as protected area development, REDD+, and FLEGT, to consult and work with local communities. For example, there are ongoing consultations for the development of three national parks, some of which are quite involved and extensive. The new (2016) Myanmar Land Use Policy recognizes customary land use tenure system. A new Land Law, based on the policy statement, is currently being written. Further, in “Conservation of Biodiversity and Protected Areas Law” (2018), there are sections that support the legal recognition of customary land use tenure. Similarly, under the REDD+ initiative, the roadmap calls for National Guidelines on Free, Prior and Informed Consent (FPIC) to be developed based on a study into traditional decision-making systems. These FPIC Guidelines will be field-tested prior to, and as part of, the development of REDD+ pilot projects. Staff training on FPIC has been ongoing since 2014, in-house and through RECOFTC. There are recent advances in the development of LCCAs, with a local proposal to change the Phar-Baung-Taung Nature Reserve, established on 7th August 2018 in Mon State, with an area of 188.6 ha, in to Phar-Baung-Taung Community Conserved Protected Area. The proposal is moving ahead with government approval.

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19. Biodiversity knowledge

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

This ABT has been a major focus in Myanmar under the NBSAP, with contributions from government, NGOs, IGOs, donor agencies (JICA, Australia, EU, etc.), national universities, and international universities. Government budgets for conservation have increased, although not for enforcement, and considerable donor project funding has come into the country. This has resulted in a large number of programs, especially at the species and human community level to improve basic knowledge and to manage how resources are used. Key international programmes including REDD+, EU-FLEGT, BOBLME and others have been implemented or are in the planning stages. There has been increased in monitoring of key species, such as sun bears, tigers and elephants, rare species including Baer's pochard, and of migratory birds, especially shorebirds at key areas such as the Gulf of Mottama. Numbers of listed species under IUCN have risen steadily, as more knowledge is accumulated and time to consider individual species by expert groups has increased. Several Myanmar universities now have courses in conservation science, including marine ecology. Training gaps were identified and filled by working directly with three different universities (e.g., see 10.1.2). MONREC has established a program of improving the qualifications of its staff by funding employees at the master's and doctoral levels at universities outside the country, and NGOs fund students to attend foreign schools to study. For example, Australia has a program in place to fund post-secondary student education, as well as assisting collaborations between Australian and Myanmar universities. Currently, five major national universities offer conservation-related degrees. Data from one university showed a large number of graduates in the past 3 years (>380 students, including 84 women). As an indicator of the amount of increased knowledge on biodiversity in Myanmar, a search of Google Scholar by year on 'Myanmar +biodiversity' revealed that there was an almost 50% increase in the number of papers published in scientific journals in 2015 to 2017 (mean = 3112/yr) as compared to during 2010 to 2013 (mean = 2147/yr). The number of species with sufficient information to be assessed by expert groups has increased annually, such that more than 4000 species have been examined, partly as a result of targeted research or monitoring programs for specific taxa. Mainstreaming biodiversity remains difficult in Myanmar, but under the NBSAP positive steps have been taken through public, media and industry education programs. This work has included the translation and publication of biodiversity materials, such as the tiger conservation plan and the ecotourism strategy and policy into Myanmar language. Both government and NGOs, such as Wildlife Conservation Society and Flora and Fauna International, have provided training to communities near protected areas for sustainable management and alternative livelihoods, to reduce pressures on protected areas and in buffer zones. Further, media training events have been initiated in two cities, resulting in some networks including "The Voice of Myanmar" and "Eleven	EN

Media" broadcasting more information on biodiversity and environmental issues. The Myanmar Centre for Responsible Business (MCRB) has been working for several years to improve the conservation of biodiversity in businesses and industry. They have helped with EIA development and have conducted training to encourage sustainable resources use.

20. Resource mobilization

Financial Reporting Framework

https://chm.cbd.int/database/record/207665 Financial Reporting Framework: Reporting on baseline and progress towards 2015

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

By all available measures, funding for biodiversity and conservation has increased substantially in Myanmar over the past 4 years, including government in-house budgets, with the unfortunate exception of budgets for natural resources enforcement. The latter remains an important gap moving forwards in protecting wildlife and their habitats Myanmar, owing to the known high rate of wildlife poaching, illegal fishing, and large cross-border illegal timber trade, which are all major contributors to unsustainable use and species population decline. The Wildlife Conservation Department budget has risen more than 50%, GEF funding has increased by 30%, and NGO budgets for the country have also increased based on the increased number of programs over the past 4 years. ODA data from OECD were not available after 2016, but ODA for conservation-related issues has been greater during the period after 2013 than up to and including that year, and has averaged about $19 million/year during the NBSAP reporting period.	EN

Section V. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation

Myanmar does not have national targets related to the GSPC Targets

1. An online flora of all known plants

2. An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

3. Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared

4. At least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration

5. At least 75 per cent of the most important areas for plant diversity of each ecological region protected with effective management in place for conserving plants and their genetic diversity

6. At least 75 per cent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity

7. At least 75 per cent of known threatened plant species conserved in situ

8. At least 75 per cent of threatened plant species in ex situ collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes

9. 70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge

10. Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded

11. No species of wild flora endangered by international trade

12. All wild harvested plant-based products sourced sustainably

13. Indigenous and local knowledge innovations and practices associated with plant resources maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care

14. The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

15. The number of trained people working with appropriate facilities sufficient according to national needs, to achieve the targets of this Strategy

16. Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy

Section VI. Description of the national contribution to the achievement of the targets of indigenous peoples and local communities

No information available

Section VII. Updated biodiversity country profile

Biodiversity facts : Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:

Myanmar is rich in biodiversity due to its diverse ecosystems from the ocean to the south, through drylands in the central areas, and rising to mountains in the west and north. A new ecosystem classification indicates that Myanmar supports 64 ecosystem	EN

types. Among these, the forest types are considered to be integral to the stability of the environment, covering about 42% of Myanmar’s land base, but the country also supports a large diversity of freshwater ecosystems, ranging from fast-flowing mountain streams to wide, slow-flowing lowland rivers, as well as lakes and wetlands. Myanmar is also endowed with extensive coastal and marine ecosystems, with half a million hectares of brackish and freshwater swampland that supports essential ecological functions and habitats such as spawning, nursery and feeding grounds for fish, prawns and other aquatic biodiversity of economic importance. Overall, the country sustains more than 18,000 species including 11,800 species of vascular plants of gymnosperms and angiosperms, 1200 butterfly species, 251 mammals, 1,056 bird species, 282 reptiles, 82 amphibians, 1540 medicinal plants, 96 bamboos, and many crop species, including endemic rice species. The Central Dry Zone is well known for the production of oil seeds and cotton, especially under developed irrigation systems. To the far south, the Taninthayi region is well-suited for rubber and fruit crops. Myanmar is also rich with inland water and freshwater diversity, supporting over 350 freshwater fish species (a significant portion of which may be endemic), over 800 marine fish species, 9 species of seagrass, 51 coral species, and 5 of the world’s marine turtles are found in Myanmar’s waters. Myanmar’s genetic diversity is eroding, however, due to the introduction of modern varieties and technology to feed an ever-expanding population. The country has listed 128 globally endangered and critically endangered species, including 25 mammals, 25 birds, 2 amphibians, 10 fish and 10 reptiles among vertebrates and 32 endangered plant species. Three new gecko species were recently discovered in Taninthayi and these may be listed under IUCN as well. Myanmar relies largely on ecosystem services and biodiversity for the livelihood of its population and economic growth. A particularly important example of this dependency is the agricultural sector that, in 2017, represented 38% of the GDP, provided 23% of the country’s export earnings, and employed 50% of the total labor force (of which 48% were women). With 18 million ha of total arable land and a population growth rate of 0.91% (in 2017), the agriculture sector plays a highly significant role for the future, in terms of employment, economic growth and food security. The National Seed Bank is important in sustaining the genetic diversity of key crop species, such as rice and beans, through research, collections, and long-term cold storage. Forests are fundamental to the socio-economic well-being of the people of Myanmar, providing local villagers not only numerous forest products to fulfill their basic needs, including wood fuel, but also contributing substantial foreign exchange earnings to the State economy. Teak and other hardwoods, including rosewoods, are the major export timber species of interest. Mangrove forests are important as well, for the shoreline protection that they provide, but also for shrimp aquaculture and as marine species’ nursery habitats. A growing industry in Myanmar that relies on ecosystem services is ecotourism, and with new policies, training programs for practitioners, and certification all now in place, Myanmar aims to protect its biodiversity while enhancing this industry, especially in protected areas.

Main pressures on and drivers of change to biodiversity (direct and indirect)

The main indirect drivers of biodiversity loss are climate change, population growth, and recurring poverty that is at about 32% of the population (although closer to 40% in rural areas), although the number of poor people has been declining. The major direct threats to biodiversity in Myanmar include over-exploitation of wildlife and fisheries (much of it illegal, with increasing markets for wildlife and their derivatives in neighboring countries), deforestation, forest degradation, and loss of intact forests, encroachment for urbanization, forest fires, and introduction of alien invasive species. The legal recorded marine harvest has continued to increase by 150,000 metric tons/ year, despite a target to reduce the catch to sustainable levels. The Integrated Biodiversity Assessment Tool (IBAT) also lists agricultural runoff pollution and increased aquaculture as major causes of biodiversity loss. Populations of marine turtles have been declining primarily due to their capture for consumption and ornamental crafting, destruction of nesting sites and egg collection, and large flagship mammal species, including tigers and Asian elephants, are highly vulnerable to local extinction due to skewed sex ratios, illegal killing, and loss of habitat. Deforestation has increased and, at the rate of more than 330,000 ha/year, remains the main cause of terrestrial habitat loss and species declines. Much of this loss results from agricultural clearing. Likewise, declining inland waters biodiversity is common due to increased demand on freshwater resources, drainage of wetlands, pollution of major rivers, and clearing of mangroves for agriculture and urbanization. Mangrove forest loss is now estimated at 1300 ha/ year, but this is substantially down from 2100 ha/year prior to 2015.	EN

Implementation of the NBSAP

The vision of the country’s revised NBSAP released in 2015 is “Conservation, management and use of biodiversity in a sustainable manner for sound and resilient ecosystems and national posterity”. The mission statement is that “by 2020, biodiversity is valued, effectively conserved, sustainably used, and appropriately mainstreamed to ensure the continuous flow of ecosystem goods and services for the economic, environmental and social well-being of the present and future generations”. The plan has 61 National Targets with 163 planned actions and among these, by 2018, almost 40% had been achieved. Much remains to be accomplished, however, to reduce the loss of habitats, recover lost and degraded forests, and reduce legal and illegal over-exploitation.	EN

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020

Myanmar has embarked on a comprehensive program to enhance the protection of biodiversity under its revised NBSAP (2015). Actions taken to conserve biodiversity include: a national reforestation program, including for mangroves; establishment of forest plantations to control desertification; promotion of wood fuel substitutes and use of more efficient wood stoves; establishment of formal community forestry on over 211,000 ha by 2018; improving the biodiversity and forestry laws; characterizing and sustaining genetic diversity for the efficient and sustainable use of crop genetic resources, including through long-term seed storage; developing agro-environmental	EN

techniques including sustainable aquaculture with training for farmers; improving the knowledge base for species-based management; and enhancing international cooperation to protect threatened marine turtles. In 2018, several new laws were adopted including a new Forest Law and the Conservation of Biodiversity and Protected Areas Law, both of which modernized Myanmar’s approach to natural resources management. Sustainable agricultural practices are being promoted, with soil biodiversity improved as a result of organic farming practices, and a number of research activities have been conducted for conserving plant genetic diversity. Guided by the National Forest Policy and Master Plan, the Forest Department has moreover made strenuous efforts to expand the coverage of protected areas during the last decade. Myanmar has established 42 protected areas (95% terrestrial), including 5 Ramsar sites (4 of which are new since 2015) and two new UNESCO World Heritage aquatic areas. The percentage of land area covered by all types of protected areas, including wildlife reserves, in 2018 is now close to 8% of the country, with negotiations for three more national parks currently ongoing with local communities. This is a strong achievement as the 10% policy target was set to be achieved by 2030 and protected areas constituted less than 1% of the total land area in 1996.

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.)

Biodiversity is integrated into the education sector, providing university-level students with an opportunity to obtain degrees in various aspect of conservation and biodiversity studies, including marine sciences. Government and NGOs are providing increased training to staff at protected areas and to local communities associated with parks to improve local management. Likewise, the health sector is taking measures to conserve traditional medicinal plants through establishing herbal gardens, while the livestock and fisheries sector encourages sustainable aquaculture, in both marine and freshwater environments. Biodiversity conservation has also been introduced in amended and new laws and policies, and the new Forest Law includes provisions to enable improved management, including community forestry. The National Sustainable Development Strategy (from 2006) promotes sustainable management, while more recent relevant strategies and policies concerning biodiversity protection include the Biodiversity and Protected Areas Law, National Reforestation Plan, Elephant Conservation Plan, Tiger Conservation Plan, Ecotourism Policy, Land Policy, and the roadmap for REDD+, among many other initiatives. The Ministry of Natural Resources and Environmental Conservation (MONREC) is the main agency responsible for implementing national policies on nature conservation in Myanmar, although other ministries, such as the Ministry of Agriculture, Livestock, and Irrigation (MOALI) also share responsibility and accountability for biodiversity conservation. Finally, the National Biodiversity Conservation Committee (NBCC) was formed to coordinate conservation activities at local and national levels. This Committee is chaired by the Minister of the MONREC and now includes 21 members from 19 ministries, thus being one of the most important tools for coordinating biodiversity protection and mainstreaming.	EN

Mechanisms for monitoring and reviewing implementation

Partnerships with NGOs and donor agencies form an important mechanism by which species and habitats are monitored. For example, monitoring of elephant populations, tigers in key areas, migratory birds, and endangered species programs are all conducted through these partnerships. Information gathering and close monitoring have also been emphasized for important marine species including sharks, dolphins, marine turtles, and dugong. Better use is being made of global datasets, supplemented with Myanmar biodiversity data, to derive illustrative and comparative maps that can assist in conservation planning. Environmental Impact Assessment (EIA) is an important method by which impact and pre-development monitoring are accomplished. Implementation of the NBSAP and progress towards conserving biodiversity is reviewed in the National Reports, which are produced in a comprehensive manner every 4 years.	EN